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Catalogue of scientific papers, 1800-1900

Royal Society
(Great Britain),
Herbert McLeod

L Soc 5.53.55



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FROM

Prof. Theodore Lyman

CATALOGUE
OF
SCIENTIFIC PAPERS
1800—1900

SUBJECT INDEX

VOLUME I

PURE MATHEMATICS

CAMBRIDGE UNIVERSITY PRESS WAREHOUSE,

C. F. CLAY, MANAGER.

London: FETTER LANE, E.C.

Glasgow: 50, WELLINGTON STREET.



Leipzig: F. A. BROOKHAUS.

New York: G. P. PUTNAM'S SONS.

Bombay and Calcutta: MACMILLAN AND CO., LTD.

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ROYAL SOCIETY OF LONDON

CATALOGUE

OF

SCIENTIFIC PAPERS

1800–1900

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VOLUME I

PURE MATHEMATICS

CAMBRIDGE :
AT THE UNIVERSITY PRESS
1908

L Soc 5.53.55

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Bot. Soc. - L.S.
Gen. Soc. - L.S.

ARRANGED FOR A COMMITTEE OF THE ROYAL SOCIETY
UNDER THE SUPERINTENDENCE OF

HERBERT MCLEOD, LL.D., F.R.S.

DIRECTOR OF THE CATALOGUE

with the assistance of

R. J. DALLAS, M.A.

KING'S COLLEGE, CAMBRIDGE

PREFACE

WHEN the plan for a Catalogue of Scientific Papers was drawn up in 1857 by the Royal Society, it was also contemplated that a Subject Index to the papers should be made. During the compilation of the well known twelve volumes of the Catalogue of Authors (1800—1883) much material was collected for the Subject Index by the Committee of the Society which had charge of the work, but nothing was printed.

In 1898 it was determined to undertake the continuation for the period 1884—1900, and at the same time to prepare material for a Subject Index for these last seventeen years of the century. It was afterwards decided that one Index should be made to the papers of the whole of the Nineteenth Century; and to bring this Index into relation with the International Catalogue of Scientific Literature, which deals with publications subsequent to 1900, the Index was to be arranged in accordance with the schedules of the different sciences which form the basis of the International Catalogue.

The extent of the work for the period 1884—1900 proved to be so great that the resources of the Royal Society would have been quite inadequate for its completion. Its continuation has been made possible by liberal donations received from various sources. The Catalogue is especially indebted to Dr Ludwig Mond, F.R.S., a member of the Committee entrusted with its preparation, who has encouraged and forwarded its progress in every way for many years past; in particular, in addition to similar generous donations at earlier stages, Dr Mond recently undertook to provide an extremely liberal subsidy during the three years 1907—9, which has enabled the work to be pressed forward rapidly.

The Subject Index will be published as separate Index-volumes for each of the seventeen Sciences of the Schedules of the International Catalogue, viz. Mathematics, Mechanics, Physics, Chemistry, Astronomy, Meteorology, Mineralogy, Geology, Geography, Palaeontology, Biology, Botany, Zoology, Anatomy, Anthropology, Physiology, and Bacteriology.

The practical advantage which will accrue from thus classifying the literature of each Science seems to be amply sufficient, in spite of unavoidable imperfections, to justify the great expense that has been involved. In the past a student interested in a single branch of the subject would probably consult special Treatises and Reports from which he could obtain references to the more important memoirs. But it often happens that such references are transferred simply from one treatise to another, and

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experience shows that important contributions that have once dropped out of sight may for a long time, or indeed ever afterwards, be overlooked. When the whole literature is set out systematically and exhaustively under appropriate headings as in the present volume, such accidents are guarded against so far as seems to be possible.

The present volume dealing with Pure Mathematics is the first instalment of the Subject Index: it contains 38748 entries referring to 700 serials. It is believed that these entries cover all the contents of the serials indexed with the exception of about 750 short notes (mostly falling under 6810 and 7210) which were not thought of sufficient permanent interest to be entered.

The Index titles for papers published from 1884 to 1900 inclusive have been made by Referees familiar with the subjects, who have consulted the original papers and have made the titles from the contents of the papers and not merely from their headings. It was intended that the Index entries for the papers from 1800 to 1883 should be made from the titles as printed in the Catalogue of Authors, but it was soon found that many of the titles were too indefinite for such minute classification, and reference has had to be made to the original papers in a large number of cases. The latter part of this work was commenced by the late Mr George Griffith of Harrow, whose untimely death was a great loss to the Committee.

The entries in the Index are arranged so that reference can be made to the complete titles in the Catalogue of Scientific Papers. Generally the author's name together with the date will indicate the volume in which the title of the paper may be found. These clues are insufficient when the paper is anonymous or occurs in Volume XII or in the additions to Volume VI. They are also at fault for titles marked with an asterisk showing that they belong to previous volumes; in these cases the number of the volume is given in the Index entry in small Roman numerals within brackets.

When an error has been found in an author's name in the Catalogue, it is corrected in the Index by a reference made to the error.

The Index contains references to some papers of dates earlier than 1884 which were omitted in previous volumes of the Catalogue: these are indicated by an asterisk placed before the date; the full titles of these papers will be given in the continuation of the Catalogue of Authors.

When an author's personal name does not appear in the heading of an original paper, no attempt has been made to find the name for the Index, but this will be done for the Catalogue of Authors.

The Catalogue of Authors for the period 1884 to 1900 is in preparation; the material will not however be quite complete until the Subject Indexes for the various Sciences have been reduced into order.

Entries on the same subject are arranged, so far as possible, in order of

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date irrespective of the authors' names, with the endeavour to present the subject in the historical form. This grouping of the entries, involving modifications of titles prepared by different Referees, or by the same Referee at different times, has been one of the most difficult problems in the preparation of the Index.

The abbreviations of the names of the serials used in the Royal Society Catalogue have been further shortened for the Index. As the abbreviations are not uniform in all the volumes, it will be found that the same journal may be indicated by several different abbreviations, but in each case the one selected is that which was used in the volume in which the title of the paper occurs.

In the case of serials commencing since 1883, the abbreviations adopted in the International Catalogue have been used as a guide.

The list of serials will, it is hoped, be a valuable feature of the Index. It has been drawn up by the Director and contains the names of 701 serials from which the entries in the Index have been taken. Each title is preceded by the abbreviation which represents the serial in the Index; the date of commencement of the serial is given, and if it is extinct the date of the last volume is added. There are appended symbols representing the names of twenty-three British Libraries in some of which the serials may be found; where the set is incomplete the symbol is followed by *i*. The information from which this list has been compiled was obtained, in the first instance, from published catalogues; subsequently the list was submitted to the custodians of many of the libraries, who kindly marked many serials which had not been found in the catalogues used. The thanks of the Committee for this valuable assistance are due to Mr F. Jenkinson of the Cambridge University Library, Mr E. W. B. Nicholson of the Bodleian Library, the Librarian of the Radcliffe Library, the Librarian of the Patent Office, Dr B. Daydon Jackson and Mr A. W. Kappel of the Linnean Society, Mr W. H. Wesley of the Royal Astronomical Society, Mr C. V. Crook of the Geological Museum, Mr F. W. Clifford of the Chemical Society, and Mr R. W. Chambers of University College, London; Mr R. Lloyd Praeger obtained the information from the five libraries in Dublin, and Dr Hugh Marshall, F.R.S., from two libraries in Edinburgh and two in Glasgow.

Although much care has been expended in making this list as accurate as possible, it is probable that some errors will still be found and the Director will be thankful to any one who will send corrections: portions of the list will be required for the subsequent volumes of the Index.

The subjects are arranged under the registration numbers adopted in the International Catalogue; a copy of Schedule A, Mathematics, is prefixed to the Index, with indication of the pages on which the titles for the

Preface

different sections occur. It has occasionally been found convenient, in order to save repetition in printing, to group entries under a sub-heading which is not contained in the International Catalogue Schedule. Where this has been done the sub-heading is printed in italics. In some of these cases the words of the sub-heading are understood to exist before the entries following them, and consequently these entries commence with small letters. These minor classifications, being often made mechanically on the basis of the explicit mention of the sub-heading, are not to be taken as exhaustive; cognate entries may be found elsewhere under the same main heading. The unit of classification is thus the complete numbered heading.

The first portion of the present volume of the Index having been sent to press before the whole of the material had been sorted, some slips belonging to earlier sections were discovered during the arrangement of the later ones. These titles have been placed in an Appendix under their appropriate registration numbers.

The following referees have assisted at various times in the preparation of the Subject Index in Pure Mathematics:—the late Professor J. D. Everett, F.R.S., Mr R. J. Dallas, Miss Alice Everett, Mr R. Hargreaves, Miss W. M. Hudson, Mr H. Knapman, Miss E. Perrin and Mr G. Harold Wilson. The Committee is indebted to them for much valuable help.

The arrangement of the contents of this volume for the press has been made by Mr R. J. Dallas, M.A., of King's College, Cambridge. To him and to Miss Bremner and the members of the Catalogue Staff thanks are due for careful and conscientious work.

At the request of the other members of the Committee, Mr G. B. Mathews, F.R.S., examined the whole of the proof-sheets, and made suggestions for their improvement: he was also consulted from time to time about questions of arrangement, head lines and sub-headings.

When the time for going to press approached, the Committee learned with much satisfaction that the Syndics of the Cambridge University Press were willing to undertake the complete risk of printing and publishing, as regards both the Catalogue of Scientific Papers and the Subject Index. It will be the care of the Committee, and it is hoped of the Scientific world generally, to use their best endeavours that this public-spirited action shall not result in financial loss.

Finally the thanks of the Committee are due to the officials of the Cambridge Press for their unfailing courtesy in the discharge of a complex task.

March 1908.

SUBJECT INDEX OF PURE MATHEMATICS

LIST OF SERIAL PUBLICATIONS

WITH THE ABBREVIATIONS OF THEIR TITLES USED IN THE INDEX, AND
LIBRARIES WHERE THE SERIALS CAN BE CONSULTED.

The date following the title of a serial indicates the year of its commencement; if a second date is given it marks the termination of the serial.

The letters following the dates indicate libraries where the serials are to be found: if the serial is incomplete, the symbol of the library is followed by *i*.

B.M.	British Museum.	Glasg.P.S.	Royal Philosophical Society of Glasgow.
Camb.P.S.	Cambridge Philosophical Library.	Glasg.U.	Glasgow University.
Camb.U.	Cambridge University Library.	Linn.S.	Linnean Society.
Chem.S.	Chemical Society.	Math.S.	Mathematical Society.
Dub.N.L.I.	National Library of Ireland, Dublin.	N.H.M.	Natural History Museum.
Dub.R.C.S.	Royal College of Science, Dublin.	Oxon.B.	Bodleian, Oxford.
Dub.R.D.S.	Royal Dublin Society.	Oxon.B.(R.)	Deposited in Radcliffe.
Dub.R.I.A.	Royal Irish Academy, Dublin.	Oxon.R.	Radcliffe, Oxford.
Dub.T.C.	Trinity College, Dublin.	P.O.	Patent Office, London.
Edinb.R.S.	Royal Society of Edinburgh.	R.A.S.	Royal Astronomical Society.
Edinb.U.	Edinburgh University.	R.S.	Royal Society.
Geol.M.	Geological Survey Museum, Jermy St.	U.C.L.	University College, London.

Abv. Mm. S. Ém.	Mémoires de la Société d'Émulation d'Abbeville. Abbeville.
Abv. S. Mm.	1833— B.M.; Camb.U.i.; Dub.T.C.; Edinb.R.S.i.; Linn.S.i.; N.H.M.i.; Oxon.B.i.; R.S.i.
A. C.	Annales de Chimie, ou Recueil de Mémoires concernant la Chimie et les Arts qui en dépendent. Paris. 1789— B.M.; Camb.U.; Chem.S.; Dub.R.D.S.i.; Dub.T.C.i.; Edinb.R.S.; Edinb.U.; N.H.M.; Oxon.B.i.(R.); P.O.; R.S.; U.C.L.
Ac. Cæs. Leop. W. Acta ...	Nova Acta physico-medica Academiæ Cæs. Leopoldino-Carolinæ Naturæ Curiosorum. Erlangen, Bonn, Breslau. 1758— Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.; Edinb.R.S.i.; Edinb.U.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.R.; R.A.S.i.; R.S.; U.C.L.i.
Acireale Ac. At.	See Ac. Mt. C. W. Acta and Cæs. Leop. Ac. W. Acta . Atti e Rendiconti dell' Accademia di Scienze, Lettere e Arti dei Zelanti e PP. dello Studio di Acireale. 1890— Camb.P.S.i.; N.H.M.i.; R.S.i.
A. Cond. Pon. Chauss. ...	Annales des Conducteurs des Ponts et Chaussées; recueil de mémoires, etc., concernant le Service de Conducteurs des Ponts et Chaussées. Paris. 1857— P.O.
A. Cons. Arts et Mét. ...	Annales du Conservatoire des Arts et Métiers. Paris. 1861— B.M.; Camb.U.; Glasg.P.S.i.; Oxon.B.; P.O.; R.S.
Ac. Mt. C. W. Acta	See Ac. Cæs. Leop. W. Acta and Cæs. Leop. Ac. W. Acta .
Acta Mth.	Acta Mathematica. Stockholm. 1882— B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.; Math.S.; Oxon.R.; R.A.S.; R.S.; U.C.L.

List of Serial Publications

- A. der Hydrog.** Annalen der Hydrographie und Maritimen Meteorologie. Herausgegeben von der Deutschen Seewarte in Hamburg. Berlin.
1873— B.M.; P.O.i.
- A. di C.** Annali di Chimica. Milano.
1845—1900. B.M.; Chem.S.i.; P.O.i.
- Aer. J.** The Aeronautical Journal. London.
1897— B.M.; Camb.U.i.; P.O.; R.S.
- A. Gén. Civ.** Annales du Génie Civil; Recueil de Mémoires sur les Mathématiques pures et appliquées; l'Astronomie, la Chimie, la Physique, etc. Paris.
1862—80. B.M.; Camb.U.; Dub.R.C.S.i.; P.O.
- A. Hydrog.** Annales Hydrographiques. Recueil d'avis, instructions, documents, et mémoires relatifs à l'Hydrographie et à la Navigation. Paris.
1849— B.M.; Edinb.R.S.i.; Oxon.B.; R.A.S.i.; R.S.i.
- Aix Ac. Mm.** Mémoires de l'Académie des Sciences, Agriculture, Arts et Belles-lettres. Aix.
1819— B.M.; Dub.R.I.A.; N.H.M.i.; Oxon.B.i.; R.S.i.
- Aix Mm.**
Aix Mm. Ac. Transactions of the Albany Institute. Albany.
1830— B.M.; N.H.M.; R.S.
- Alb. I. T.** The Transactions of the Allelodidactic Society. London.
1848. R.S.
- Allelod. S. T.**
Am. Ac. Mm. Memoirs of the American Academy of Arts and Sciences. Cambridge and Boston.
1785— B.M.i.; Camb.P.S.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.i.
See Bost. Am. Ac. Mm. and Bost. Mm. Am. Ac.
- Am. Ac. P.** Proceedings of the American Academy of Arts and Sciences. Boston.
1846— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Edinb.R.S.; Glasg.P.S.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Am. As. P.** Proceedings of the American Association for the Advancement of Science. Washington, Salem.
1848— B.M.i.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.
- Am. C.** The American Chemist, a monthly Journal of theoretical Chemistry. New York.
1871—77. Chem.S.i.; N.H.M.; P.O.
- Am. Eng. & Railroad J.** American Engineer and Railroad Journal. New York.
1893—95. B.M.; P.O.
- Amiens Ac. Mm.** Mémoires de l'Académie des Sciences, Agriculture, Commerce, Belles-lettres, et Arts du département de la Somme. Amiens.
1835— B.M.; Camb.U.; Dub.T.C.i.; N.H.M.i.; Oxon.B.i.; R.S.i.
- Amiens Mm. Ac.**
Amiens Mm. Ac. Sc. Annales des Mines, ou Recueil des Mémoires sur l'exploitation des Mines, et sur les Sciences et les Arts qui s'y rapportent. Paris.
1817— B.M.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.i.; Glasg.P.S.i.; N.H.M.; Oxon.B.(R.); P.O.; R.S.
- A. Mines** [Reports and Transactions] of the American Institute of the City of New York. Albany.
1841— B.M.i.; P.O.i.; R.S.i.
- Am. I. T.** American Journal of Mathematics. Baltimore.
1878— B.M.; Camb.P.S.; Camb.U.; Dub.N.L.I.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.i.; Math.S.; Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.
- Am. J. Mth.** The American Journal of Science and Arts; Silliman. New Haven.
1818— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.C.S.i.; Dub.T.C.i.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.
- Am. J. Sc.**
See Silliman J.
- Am. Ph. S. P.** Proceedings of the American Philosophical Society. Philadelphia.
1840— Camb.P.S.; Camb.U.i.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.; Math.S.i.; N.H.M.i.; Oxon.B.; Oxon.R.i.; P.O.; R.A.S.; R.S.; U.C.L.
- Am. Ph. S. T.** Transactions of the American Philosophical Society. Philadelphia.
1771— B.M.i.; Camb.P.S.; Camb.U.i.; Chem.S.i.; Dub.R.I.A.;

List of Serial Publications

- Edinb.R.S.; Linn.S.; N.H.M.i.; Oxon.B.; Oxon.R.i.; P.O.; R.A.S.i.; R.S.; U.C.L.i.
- Am. S. CE. T.** Transactions of the American Society of Civil Engineers. New York. 1871— P.O.
- Amst. Ak. Jb.** Jaarboek van de Koninklijke Akademie van Wetenschappen gevestigd te Amsterdam. Amsterdam. 1857— B.M.; Camb.P.S.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.; N.H.M.; R.A.S.i.; R.S.; U.C.L.i.
See **Amst. Jb.** and **Amst. Jb. Ak.**
- Amst. Ak. F.** Koninklijke Akademie van Wetenschappen te Amsterdam. Proceedings of the Section of Sciences. Amsterdam. 1899— Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.; Glasg.U.; Oxon.B.; R.A.S.; R.S.
- Amst. Ak. Vh.** Verhandelingen der Koninklijke Akademie van Wetenschappen. Amsterdam. 1854— Camb.P.S.; Camb.U.; Dub.N.L.I.; Dub.R.I.A.i.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.; R.A.S.; R.S.; U.C.L.i.
- Amst. Ak. Vs.** Verslagen der Zittingen van de Wis- en Natuurkundige Afdeling der Koninklijke Akademie van Wetenschappen. 1893, 1894. Verslagen van de Zittingen der Wis- en Natuurkundige Afdeling van de Koninklijke Akademie van Wetenschappen. 1895, 1896. Koninklijke Akademie van Wetenschappen te Amsterdam. Verslagen van de Gewone Vergaderingen der Wis- en Natuurkundige Afdeling. Amsterdam. 1897— B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.; Glasg.U.; N.H.M.; R.A.S.; R.S.
- Amst. Ak. Vs. M.** Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen. Afdeling Natuurkunde. Amsterdam. 1853—92. B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.; Linn.S.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.; U.C.L.i.
See **Amst. Vs. Ak.**
- Amst. Ak. Wet. F.** Processen-Verbaal van de Gewone Vergaderingen der Koninklijke Akademie van Wetenschappen, Afdeling Natuurkunde. 1865—84. Dub.R.D.S.; Linn.S.i.; R.A.S.; R.S.
- Amst. Arch. Wisk. Gn.** Archief uitgegeven door het Wiskundig Genootschap. Amsterdam. 1856— B.M.; R.S.i.; U.C.L.i.
See **Arch. Wisk. Gn.**
- Amst. I.** Het Instituut. Amsterdam. 1841—46. B.M.; Edinb.R.S.i.
- Amst. Jb.** }
Amst. Jb. Ak. } See **Amst. Ak. Jb.**
- Amst. Mengelwerk** Mengelwerk van uitgeleezene en andere Wis- en Natuurkundige Verhandelingen; door het Genootschap der Mathematische Wetenschappen, etc. Amsterdam. 1796—1816. R.S.
See **Mengelwerk Wisk. Vh.**
- Amst. N. Vh.** Nieuwe Verhandelingen der eerste Klasse van het Koninklijk Nederlandsche Instituut van Wetenschappen, Letterkunde, en Schoone Kunsten te Amsterdam. Amsterdam. 1827—52. B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.; Linn.S.; N.H.M.; R.S.
- Amst. N. Wa. Ntk. Vh.** Nieuwe Wis- en Natuurkundige Verhandelingen van het Genootschap te Amsterdam. Amsterdam. 1844—54. B.M.; R.S.
- Amst. Ts. Wa. Nt. Wet.** Tijdschrift voor de Wis- en Natuurkundige Wetenschappen, Letterkunde, en Schoone Kunsten te Amsterdam. Amsterdam. 1847—52. B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Linn.S.; Oxon.B.; R.S.
- Amst. Vh.** }
Amst. Vh. Ak. } Verhandelingen der Eerste Klasse van het Koninklijk Nederlandsche Instituut van Wetenschappen, Letterkunde, en Schoone Kunsten te Amsterdam. Amsterdam. 1812—25. B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.; N.H.M.; Oxon.B.; R.S.
- Amst. Vs. Ak.** See **Amst. Ak. Vs. M.**
- A. Mt.** Annali di Matematica pura ed applicata...; Tortolini. Roma, Milano. 1858— B.M.; Camb.U.i.; Dub.R.D.S.; Dub.T.C.; Edinb.U.; Glasg.U.i.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.
See **Tortolini A.**

List of Serial Publications

- A. Mth.** Annals of Mathematics. University of Virginia. Charlottesville, Va.
1884— Camb.P.S.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; Math.S.i.; Oxon.B.
- Amst. Mch. S. J.** The [Quarterly] Journal of the Amateur Mechanical Society. London.
1872—79. B.M.; P.O.
- Angers Mm. S. Ag.** Mémoires de la Société d'Agriculture, Sciences, et Arts. Angers.
1831— B.M.; N.H.M.i.; Oxon.B.i.; R.S.i.
- Angers S. Sc. Bll.** Bulletin de la Société d'Études Scientifiques d'Angers. Angers.
1872— B.M.; N.H.M.
- A. Fon. Chauss.** Annales des Ponts et Chaussées. Mémoires et documents relatifs à l'Art des Constructions et au Service de l'Ingénieur. Paris.
1831— B.M.; Camb.U.; Edinb.U.i.; Glasg.P.S.i.; Glasg.U.i.; P.O.; R.S.i.
See Par. A. Fon. Chauss.
- A. Ph. C.** Annalen der Physik und Chemie; Poggendorff. Leipzig.
1824— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.i.; N.H.M.; Oxon.B.(R.); P.O.; R.S.; U.C.L.i.
See Fogg. A.
- Arch. f. Ap.** Archiv für Anthropologie. Zeitschrift für Naturgeschichte und Urgeschichte des Menschen. Braunschweig.
1867— B.M.; Camb.U.; Dub.N.L.I.; N.H.M.i.; Oxon.R.; R.S.
- Arch. Mth. Ntvd.** Archiv for Mathematik og Naturvidenskab. Kristiania.
1876— B.M.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.i.; R.S.
- Arch. Mth. Ph.** Archiv der Mathematik und Physik; Grunert. Greifswald, Leipzig.
1841— B.M.; Camb.U.; Dub.N.L.I.; Dub.R.C.S.; Edinb.U.; Glasg.U.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.i.
See Grunert Arch.
- Arch. Néerl.** Archives Néerlandaises des Sciences Exactes et Naturelles. La Haye, Harlem.
1866— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Geol.M.i.; Glasg.P.S.; Glasg.U.; Linn.S.; Math.S.; N.H.M.; Oxon.R.; P.O.; R.S.; U.C.L.i.
- Arch. Sc. Ph. Nt.** Bibliothèque Universelle. Archives des Sciences Physiques et Naturelles. Genève.
1846— B.M.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.; Edinb.U.; Glasg.U.; N.H.M.; Oxon.B.; P.O.; R.S.
See Bb. Un. Arch.
- Arch. Wisk. Gn.** *See Amst. Arch. Wisk. Gn.*
- Arg. S. Cl. A.** Anales de la Sociedad Científica Argentina. Buenos Aires.
1876— B.M.i.; N.H.M.
- As.** L'Astronomie. Revue d'Astronomie populaire, de Météorologie et de Physique du Globe. Paris.
1882—94. B.M.; Camb.U.i.; Edinb.R.S.; R.A.S.; R.S.i.
- As. & Asps.** Astronomy and Astrophysics. Northfield, Minn.
1892—94. B.M.; Camb.P.S.i.; Dub.N.L.I.i.; R.A.S.; R.S.
- A. Sc.** Annaes das Sciencias e Lettras, publicados debaixo dos auspicios da Academia Real das Sciencias; Sciencias mathematicas, physicas, historico-naturaes e medicas. Lisboa.
1857— B.M.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; R.A.S.i.; R.S.i.
See Lisb. A.
- A. Sc. Lomb. Ven.** Annali delle Scienze del Regno Lombardo-Veneto. Padova e Venezia.
1831—45. B.M.; Camb.U.; Dub.T.C.i.; Oxon.B.
- A. Sc. Nt.** Annales des Sciences Naturelles, comprenant la Physiologie animale et végétale, l'Anatomie comparée des deux règnes, la Zoologie, la Botanique, la Minéralogie et la Géologie. Paris.
1824— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.; Dub.T.C.; Geol.M.i.; Glasg.P.S.i.; Linn.S.; N.H.M.; Oxon.R.; P.O.i.; R.S.; U.C.L.i.
- As. Fr. C. R.** Association Française pour l'Avancement des Sciences. Compte Rendu. Paris, etc.
1872— B.M.; Camb.U.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.; N.H.M.; P.O.; R.A.S.i.; R.S.
- Ashmole S. P.** Abstracts of the Proceedings of the Ashmolean Society. Oxford.
1844—81. Camb.U.; Dub.R.D.S.; Edinb.R.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.i.; R.S.

List of Serial Publications

- Ashmol. S. T.** Transactions of the Ashmolean Society. Oxford.
1834—76. Camb.U.; Dub.R.D.S.; Edinb.R.S.; N.H.M.i.; Oxon.
B.i.; Oxon.R.; P.O.i.; R.S.i.
- As. J.** The Astronomical Journal. Boston.
1851—61. 1888— B.M.; Camb.U.; Glasg.U.i.; Oxon.B.; Oxon.R.i.;
R.A.S.; R.S.i.
See Gould As. J.
- As. Nr.** Astronomische Nachrichten; Schumacher. Altona.
1823— B.M.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; Edinb.U.i.;
Glasg.U.i.; Oxon.B.(R.); R.A.S.; R.S.; U.C.L.i.
- Asps. J.** The Astrophysical Journal. Chicago.
1895— B.M.; Camb.P.S.; Camb.U.; Dub.N.L.I.; Dub.R.D.S.;
Glasg.U.; Oxon.R.i.; R.A.S.; U.C.L.
- As. Researches** Asiatick Researches; or Transactions of the [Bengal] Society insti-
tuted for inquiring into the History and Antiquities, Arts, Sciences,
and Literature of Asia. Calcutta.
1788—1836. B.M.; Camb.U.; Edinb.R.S.i.; Edinb.U.; Linn.S.;
N.H.M.; Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.i.
- As. S. J.** Journal of the Royal Asiatic Society. London.
1834— B.M.; Camb.U.; Dub.R.D.S.; Edinb.R.S.i.; Edinb.U.i.;
Linn.S.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.i.; U.C.L.i.
- As. S. Mm.** Memoirs of the Astronomical Society of London. London.
1822— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.;
Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.;
Oxon.B.; Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.
- As. S. M. Not.** Monthly Notices of the Astronomical Society of London. London.
1827— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.;
Edinb.R.S.; Glasg.P.S.i.; Glasg.U.; Oxon.B.i.; Oxon.R.i.;
P.O.i.; R.A.S.; R.S.; U.C.L.
- As. S. Pac. Pb.** Publications of the Astronomical Society of the Pacific. San
Francisco.
1889— B.M.; Camb.U.i.; Dub.R.D.S.i.; R.A.S.; R.S.i.
- As. S. T.** Transactions of the Royal Asiatic Society of Great Britain and
Ireland. London.
1827—35. B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.;
Linn.S.; Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.
- Assur. Mg.** The Assurance Magazine and Journal of the Institute of Actuaries.
London.
1830—67. B.M.; Camb.U.i.; Edinb.R.S.i.; R.A.S.i.; R.S.i.;
U.C.L.i.
- At. Ac. It.** Atti dell' Accademia Italiana di Scienze, etc. Livorno.
1810. B.M.; Camb.U.; Dub.T.C.; N.H.M.; Oxon.B.
- A. Tél.** Annales Télégraphiques, publiées sous le patronage du Directeur
Général des Lignes Télégraphiques. Paris.
1855— B.M.i.; Camb.U.i.; P.O.
- Atlantis** The Atlantis, or Register of Literature and Science, conducted by
members of the Catholic University of Ireland. London.
1858—63. B.M.; Camb.U.; Dub.N.L.I.; Dub.R.I.A.i.; Edinb.R.S.i.;
Linn.S.; Oxon.B.; R.S.
- At. Sc. It.** Riunione degli Scienziati Italiani. Atti. Pisa, etc.
1839— B.M.; Camb.U.; N.H.M.; R.S.
- Aube Mm. S. Ag.** Mémoires de la Société d'Agriculture, des Sciences, et des Lettres du
département de l'Aube. Troyes.
1823— B.M.; Camb.U.i.; Dub.T.C.i.; Oxon.B.; R.S.i.
- Ausl.** Das Ausland. München und Stuttgart.
1828—93. B.M.; Camb.U.i.; N.H.M.i.; Oxon.B.i.
- Aust. As. Ep.** Report of the..... Meeting of the Australasian Association for the
Advancement of Science. Sydney.
1888— Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.; Dub.R.I.A.;
Edinb.R.S.; Edinb.U.i.; Geol.M.; Glasg.U.; Linn.S.i.; N.H.M.;
Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.
- Barcel. Ac. Bl.** Boletín de la Real Academia de Ciencias y Artes de Barcelona.
Barcelona.
1892— N.H.M.
- Barcel. Ac. Mm.** Memorias de la Real Academia de Ciencias Naturales y Artes de
Barcelona. Barcelona.
[1st Series cannot be traced.] 1876— N.H.M.

List of Serial Publications

- B. A. Rp.** Report of the.....Meeting of the British Association for the Advancement of Science. London.
1831— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg. P.S.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Basel B.**..... Bericht über die Verhandlungen der Naturforschenden Gesellschaft in Basel. Basel.
1835—52. B.M.; Camb.P.S.; Dub.T.C.; Linn.S.; N.H.M.; R.S.
- Basel Vh.** Verhandlungen der Naturforschenden Gesellschaft in Basel. Basel.
1857— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.R.; R.A.S.i.; R.S.; U.C.L.i.
- Batav. Wtk. Ts.** Natuurkundig Tijdschrift voor Nederlandsch-Indië. Batavia.
1850— Camb.P.S.; Camb.U.; Edinb.R.S.i.; Linn.S.; N.H.M.; R.A.S.i.; R.S.i.; U.C.L.i.
- Baumgartner Z.**..... Zeitschrift für Physik, Mathematik, und verwandte Wissenschaften; Baumgartner und von Ettingshausen. Wien.
1826—42. B.M.; Camb.U.i.; Oxon.B.i.(R.); R.S.i.; U.C.L.i.
- Bb. Brit.** Bibliothèque Britannique, ou Recueil extrait des Ouvrages Anglais périodiques et autres: partie des Sciences et Arts. Genève.
1796—1815. B.M.; Edinb.U.; N.H.M.; Oxon.B.; P.O.; R.S.
- Bb. It.**..... Biblioteca Italiana, ossia Giornale di Letteratura, Scienze, etc. Milano.
1816—56. B.M.; Edinb.R.S.i.; Oxon.B.
- Bb. Mth.** Bibliotheca Mathematica. Stockholm and Leipzig.
1887— B.M.; Camb.U.; Glasg.U.; Oxon.B.; Oxon.R.; R.S.; U.C.L.
- Bb. Un.** Bibliothèque Universelle des Sciences, Belles-Lettres, et Arts, faisant suite à la Bibliothèque Britannique rédigée à Genève. Partie des Sciences. Genève.
1816—45. B.M.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.i.; Edinb.U.; N.H.M.; Oxon.B.; P.O.; R.S.
- Bb. Un. Arch.** Bibliothèque Universelle. Archives des Sciences Physiques et Naturelles. Genève.
1846— B.M.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.; Edinb.U.; Glasg.U.; N.H.M.; Oxon.B.; P.O.; R.S.
- See **Arch. Sc. Ps. Nt.**
- Belfast NH. S. P.** Report and Proceedings of the Belfast Natural History and Philosophical Society. Belfast.
- Belfast NH. S. Sp. & P.** 1852— B.M.i.; Camb.P.S.; Dub.N.L.I.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.i.; Glasg.P.S.i.; N.H.M.; P.O.i.; R.A.S.
- Beng. As. S. J.**..... Journal of the Asiatic Society of Bengal. Calcutta.
1832— B.M.; Camb.P.S.i.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.i.; R.A.S.i.; R.S.; U.C.L.
- See **Beng. J. As. S.**
- Beng. As. S. P.** Proceedings of the Asiatic Society of Bengal. Calcutta.
1865— B.M.; Camb.P.S.i.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Edinb.U.i.; Linn.S.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.; U.C.L.
- See **Beng. As. S. J.**
- Berg-Hm. Ztg.** Berg- und hüttenmännische Zeitung; mit besonderer Berücksichtigung der Mineralogie und Geologie; Hartmann. Nordhausen und Leipzig.
1842— B.M.; N.H.M.; P.O.
- Berg. Ma. Aarb.** Bergens Museums Aarbog for.....Afhandlinger og Aarsberetning udgivne af Bergens Museum. Bergen.
1892— B.M.; Camb.P.S.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.R.; R.S.
- Berl. Ab.** Abhandlungen der Königlich Akademie der Wissenschaften zu Berlin. Berlin.
- Berl. Ak. Ab.** 1804— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.; Edinb.R.S.; Edinb.U.; Glasg.U.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.; U.C.L.i.
- Berl. Ak. Mb.** Monatsberichte der K. Preuss. Akademie der Wissenschaften zu Berlin. Berlin.
1856—81. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.i;

List of Serial Publications

- Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.;
Linn.S.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.;
R.S.; U.C.L.
- See Berl. Mb.*
- Berl. Ak. Sb.** Sitzungsberichte der K. Preussischen Akademie der Wissenschaften zu Berlin. Berlin.
1882— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.;
Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.i.; Glasg.P.S.;
Glasg.U.; Linn.S.; Math.S.; N.H.M.i.; Oxon.B.; Oxon.R.;
P.O.; R.A.S.; R.S.; U.C.L.
- Berl. As. Jb.** Berliner Astronomisches Jahrbuch; Encke. Berlin.
1776— Camb.U.; R.A.S.; R.S.i.
- Berl. B.** Bericht über die zur Bekanntmachung geeigneten Verhandlungen der K. Preuss. Akademie der Wissenschaften zu Berlin. Berlin.
1836—55. B.M.; Dub.R.I.A.i.; Edinb.R.S.; Linn.S.; N.H.M.;
Oxon.B.; P.O.; R.A.S.; R.S.
- Berl. B.** Berichte der Deutschen Chemischen Gesellschaft. Berlin.
1868— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.; Glasg.
P.S.; Glasg.U.; N.H.M.; Oxon.R.; P.O.; R.S.; U.C.L.i.
- Berl. Mb.** *See Berl. Ak. Mb.*
- Berl. Mm.** Mémoires de l'Académie Royale des Sciences de Berlin. Berlin.
1770—1804. B.M.i.; Camb.U.; Dub.R.D.S.i.; Dub.T.C.i.; Edinb.
R.S.; Edinb.U.; N.H.M.; Oxon.B.; P.O.; R.S.; U.C.L.
- Berl. Mm. Ac.** Bericht über die Verhältnisse und die Wirksamkeit der Polytechnischen Gesellschaft zu Berlin. Berlin.
1839—51. R.S.
- Berl. Pol. Ga. B.** Verhandlungen der Polytechnischen Gesellschaft. Berlin.
1851— R.S.i.
- Berl. Pa. Ga. Vh.** Verhandlungen der Physikalischen Gesellschaft in Berlin. Berlin.
1882— Camb.P.S.i.; Camb.U.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.
- Berl. Sm. D. Ab.** Sammlung der Deutschen Abhandlungen, welche in der K. Akademie der Wissenschaften zu Berlin vorgelesen worden in den Jahren
1788—1803. Berlin.
1789—1803. B.M.; N.H.M.; R.S.
- Berl. Z. Erdk.** Zeitschrift der Gesellschaft für Erdkunde zu Berlin; Koner. Berlin.
1866— B.M.; Camb.U.; Dub.R.I.A.i.; N.H.M.; Oxon.B.; R.S.i.
- Bern Mt.** Mittheilungen der Naturforschenden Gesellschaft in Bern. Bern.
1843— B.M.; Camb.P.S.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.
R.S.i.; N.H.M.; R.S.
- Birm. Ph. S. P.** Proceedings of the Birmingham Philosophical Society. Birmingham.
1876— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.i.; Dub.T.C.i.;
Edinb.R.S.; Edinb.U.i.; Geol.M.; Glasg.P.S.; Linn.S.i.; N.H.M.;
Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.i.
- Bul. As.** Bulletin Astronomique publié sous les Auspices de l'Observatoire de Paris. Paris.
1884— B.M.; Camb.U.; Edinb.R.S.; Oxon.R.; R.A.S.
- Bul. Sc. Mth.** Bulletin des Sciences Mathématiques. Paris.
1885— Camb.U.; Dub.T.C.; Edinb.R.S.; Glasg.U.; Math.S.;
Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.
- Bul. Sc. Mth. As.** Bulletin des Sciences Mathématiques et Astronomiques. Paris.
1870—84. B.M.; Camb.U.; Edinb.R.S.; Math.S.; Oxon.R.;
R.A.S.i.; R.S.; U.C.L.i.
- Bul. Sc. Nord.** Bulletin Scientifique, Historique et Littéraire du Département du Nord et des pays voisins. Lille.
1869— Camb.U.; Linn.S.; N.H.M.
- Bode As. Jb.** Astronomisches Jahrbuch, nebst einer Sammlung der neuesten in die astronomischen Wissenschaften einschlagenden Abhandlungen,
Bode Jb. Beobachtungen, und Nachrichten; Bode. Berlin.
1776—1829. Dub.T.C.i.; R.A.S.; R.S.i.
- Böhm. Ga. Ab.** Abhandlungen der K. Böhmischen Gesellschaft der Wissenschaften. Prag.
1804—92. B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.i.; Edinb.
R.S.i.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.i.
- See Prag Ab.*
- Böhm. Ga. Wa. Jbr.** Jahresbericht der Königl. Böhm. Gesellschaft der Wissenschaften. Prag.
1876— B.M.i.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.S.

List of Serial Publications

- Bologna Ac. Mm.** { Memorie della Accademia delle Scienze dell' Istituto di Bologna.
Bologna.
- Bologna Ac. Sc. Mm.** ... { 1850— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; N.H.M.;
Bologna Mm. Ac. { Oxon.B.; R.A.S.; R.S.; U.C.L.i.
- Bologna Mm. Ac. Sc.** { Memorie dell' Istituto Nazionale Italiano: Classe di Fisica e di
Bologna Mm. I. It. { Matematica. Bologna.
- 1806—13. B.M.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.;
N.H.M.; Oxon.B.i.; R.S.i.
- Bologna N. A.** Nuovi Annali delle Scienze Naturali; Alessandrini, Bertolini,
Gherardi, e Ranzani. Bologna.
- 1838—54. Camb.U.; N.H.M.; Oxon.B.i.; R.S.
See N. A. Sc. M.
- Bologna N. Cm.** Novi Commentarii Academicæ Scientiarum Instituti Bononiensis.
Bononiæ.
- 1834—49. Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; R.S.
- Bologna Opusc. Sc.** Opuscoli Scientifici. Bologna.
- 1817—23. B.M.; Camb.U.; Edinb.R.S.i.; N.H.M.
- Bologna Opusc. Sc. N.** Nuova collezione d' Opuscoli Scientifici. Bologna.
- Col. 1824—25. Camb.U.
- Bologna Rd.** Rendiconto delle Sessioni dell' Accademia delle Scienze dell' Istituto
di Bologna. Bologna.
- 1851— B.M.; Camb.U.i.; Dub.T.C.; Edinb.R.S.i.; N.H.M.i.;
Oxon.B.i.; R.A.S.i.; R.S.i.; U.C.L.i.
- Bône Ac. Hip. Bil.** Bulletin de l'Académie d'Hippone. Bône.
- 1865— Camb.U.; N.H.M.i.
- Bonn Niedr. Ga. Sb.** Sitzungsberichte der Niederrheinischen Gesellschaft für Natur- und
Heilkunde zu Bonn. Bonn.
- 1854— B.M.i.; Camb.U.i.; Edinb.R.S.i.; Linn.S.i.; N.H.M.;
Oxon.R.; R.S.i.
- Bordeaux Ac. Act.** Recueil des Actes de l'Académie des Sciences, Belles-lettres, et Arts
de Bordeaux. Bordeaux.
- 1839— B.M.i.; Dub.R.I.A.i.; Dub.T.C.i.; N.H.M.; Oxon.B.i.; R.S.i.
See Bordeaux Act. Ac. Sc.
- Bordeaux Ac. Sc. S4. Fbl.** { Séances publiques de l'Académie Royale des Sciences, Belles-lettres,
Bordeaux Ac. S4. Fbl. ... { et Arts de Bordeaux. Bordeaux.
- 1819—37. N.H.M.
See Bordeaux Ac. Act.
- Bordeaux Act. Ac. Sc.** Mémoires de la Société des Sciences Physiques et Naturelles de
Bordeaux. Bordeaux.
- Bordeaux Mm. S. Sc.** ... { 1855— Camb.P.S.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.;
Linn.S.; Math.S.; N.H.M.; Oxon.B.; R.A.S.; R.S.
- Bordeaux Mm. S. Sc. Fa.** { *See Bordeaux S. Sc. Mm.*
- Bordeaux Obs. A.** Annales de l'Observatoire de Bordeaux. Paris, Bordeaux.
- 1885— Dub.R.D.S.; R.A.S.; R.S.
See Bordeaux Mm. S. Sc.
- Bordeaux S. Sc. Mm.** ... { Procès-Verbaux des Séances de la Société des Sciences Physiques
et Naturelles de Bordeaux. Paris, Bordeaux.
- Bordeaux S. Sc. FV.** { 1894— Camb.P.S.; Dub.R.D.S.i.; Edinb.R.S.; Math.S.; N.H.M.;
R.A.S.; R.S.
- Bost. Am. As. Mm.** Memoirs of the American Academy of Arts and Sciences. Cambridge
and Boston.
- 1785— B.M.i.; Camb.P.S.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.;
Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.R.; P.O.i.;
R.A.S.; R.S.; U.C.L.i.
- See Am. Ac. Mm. and Bost. Mm. Am. Ac.*
- Bost. J. Ph.** The Boston Journal of Philosophy and the Arts; Webster, etc. Boston.
- 1824—26. B.M.
See Am. Ac. Mm. and Bost. Am. Ac. Mm.
- Bost. Mm. Am. Ac.** {
- Braunsch. Vr. Nt. Jbr.** Jahresbericht des Vereins für Naturwissenschaft zu Braunschweig.
Braunschweig, Altenburg.
- 1879— Dub.R.I.A.i.; Edinb.R.S.; Linn.S.; N.H.M.; R.S.
- Brem. Ab.** Abhandlungen herausgegeben vom Naturwissenschaftlichen Vereine
zu Bremen. Bremen.
- 1868— B.M.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.i.;
Linn.S.; N.H.M.; R.S.
- Brescia At. Cm.** Commentarij della Accademia. di Scienze, Lettere, ed Arti dell'
Brescia Cm. { Ateneo di Brescia. Brescia.
- 1808— B.M.; Camb.U.; N.H.M.i.; Oxon.B.i.; R.S.i.

List of Serial Publications

- Bresl. Sl. Gs. Jbr.** Jahresbericht der Schlesischen Gesellschaft für vaterländische Cultur. Breslau.
1850— Dub.R.D.S.i.; Dub.R.I.A.i.; N.H.M.; R.S.
- Brest S. Ac. Bll.** Bulletin de la Société Académique de Brest. Brest.
1858— B.M.; Camb.U.i.
- Brugnatelli G.** Giornale di Fisica, Chimica, e Storia Naturale; Brugnatelli, etc. Pavia.
1808—27. B.M.; Camb.U.; Dub.T.C.; N.H.M.i.; Oxon.B.; P.O.; R.S.
- Brünn Vh.** Verhandlungen des Naturforschenden Vereins zu Brünn. Brünn.
1863— Camb.U.i.; Dub.R.I.A.; Linn.S.; N.H.M.; R.S.
- Brux. Ac. Bll.** Bulletins de l'Académie Royale des Sciences, etc., de Belgique. Bruxelles.
1834— B.M.i.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.
See **Brux. Bll. Ac.**
- Brux. Ac. Cent. Anniv.** Centième Anniversaire de Fondation (1772—1872) de l'Académie Royale de Belgique. Bruxelles.
1872. B.M.; Camb.U.; Edinb.R.S.; Glasg.P.S.; Linn.S.; N.H.M.; P.O.; R.A.S.; R.S.
- Brux. Ac. Mm.** { Mémoires de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique. Bruxelles.
Brux. Ac. Sc. Mm. { 1820— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.; Edinb.U.; Linn.S.i.; N.H.M.; Oxon.B.(R.); P.O.i.; R.A.S.i.; R.S.
See **Brux. Mm. As. Sc.**
- Brux. A. Tr. Pbl.** Annales des Travaux Publics de Belgique. Bruxelles.
1843— B.M.; P.O.
- Brux. A. Un.** Annales des Universités de Belgique. Bruxelles.
1842—59. Camb.U.; Oxon.B.; P.O.; R.S.i.
- Brux. Bll. Ac.** See **Brux. Ac. Bll.**
- Brux. Mm. Ac. Sc.** See **Brux. Ac. Sc. Mm.**
- Brux. Mm. Cour.** { Mémoires Couronnés et Mémoires des Savants Etrangers, publ. par l'Acad. Roy. des Sciences, etc. de Belgique. 4to. Bruxelles.
Brux. Mm. Cour. 4° { 1818— B.M.i.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Edinb.U.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; P.O.i.; R.A.S.i.; R.S.
- Brux. Mm. Cour. 8°** Mémoires Couronnés et autres Mémoires, publ. par l'Acad. Roy. des Sciences, etc. de Belgique. 8vo. Bruxelles.
1840— B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; P.O.; R.A.S.i.; R.S.
- Brux. Obs. A. (As.)** Annales de l'Observatoire Royal de Belgique. Bruxelles.
1834— B.M.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.; Oxon.B.i.; R.A.S.; R.S.; U.C.L.i.
- Brux. S. As. Bll.** Bulletin de la Société Belge d'Astronomie. Comptes Rendus des Séances mensuelles de la Société et Revue des Sciences d'Observation. Astronomie, Météorologie, Géodésie et Physique du Globe. Bruxelles.
1896— R.A.S.
- Brux. S. Sc. A.** Annales de la Société Scientifique de Bruxelles. Bruxelles.
1877— B.M.; Dub.N.L.I.i.; Edinb.R.S.; N.H.M.
- Bucarest Ac. Rom. A.** ... Analele Academiei Romane. Bucuresci.
1880— B.M.; Camb.U.i.; N.H.M.i.
- Bucarest S. Sc. Bl.** Buletinul Societății de Științe Fizice (Fizica, Chimia și Mineralogia) din Bucuresci-România.
[1892]—[1896].
Buletinul Societății de Științe din Bucuresci-România. Bucuresci. (Bulletin de la Société des Sciences Bucarest-Roumanie.)
[1897]— Glasg.P.S.; Glasg.U.; N.H.M.; R.S.i.; U.C.L.i.
- Cadiz Period. M. Cl.** Periódico mensual de Ciencias matemáticas y físicas. Cadiz.
1848. B.M.; R.S.
- Caen Ac. Mm.** Mémoires de l'Académie des Sciences, Arts et Belles-Lettres de Caen. Caen.
1811— B.M.i.; Camb.U.i.; Dub.T.C.i.; N.H.M.i.; Oxon.B.i.; R.S.i.
- Cms. Leop. Ac. N. Acta.** Nova Acta physico-medica Academiae Cms. Leopoldino-Carolinæ naturæ Curiosorum. Erlangen, Bonn, Breslau.

List of Serial Publications

- 1758— Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.; Edinb.R.S.i.;
Edinb.U.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.R.; R.A.S.i.; R.S.
See Ac. Cæs. Leop. W. Acta.
- Calif. Ac. P.** Proceedings of the California Academy of Natural Sciences. San Francisco.
- 1854— B.M.i.; Camb.P.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.;
Linn.S.i.; N.H.M.; P.O.i.; R.S.i.
- Camb. and Dubl. Mth. J.** The Cambridge and Dublin Mathematical Journal; Thomson and
Ferrers. Cambridge.
- 1846—54. B.M.; Camb.P.S.i.; Camb.U.; Dub.T.C.i.; Edinb.R.S.;
Edinb.U.; N.H.M.; Oxon.B.; R.S.; U.C.L.
- Camb. Mm. Anal. S.** Memoirs of the Cambridge Analytical Society. Cambridge.
1813. B.M.; Camb.U.; Edinb.R.S.; P.O.; R.A.S.; R.S.; U.C.L.
- Camb. (M.) Mth. M.** The Mathematical Monthly; Runkle. Cambridge (Massachusetts).
- 1859—61. B.M.; Camb.U.; Oxon.B.; P.O.; R.A.S.i.; R.S.; U.C.L.
See Camb. (U.S.) Mth. M.
- Camb. Mth. J.** The Cambridge Mathematical Journal. London.
- 1839—45. B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.U.;
Glasg.U.; Math.S.i.; Oxon.B.i.; R.S.; U.C.L.
- Camb. Ph. S. P.** Proceedings of the Cambridge Philosophical Society. Cambridge.
- 1866— B.M.i.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.;
Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.i.;
Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.i.; P.O.; R.A.S.i.;
R.S.; U.C.L.
- Camb. Ph. S. T.** Transactions of the Cambridge Philosophical Society. Cambridge.
- 1822— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.i.;
Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; Linn.S.; Math.
S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Camb. (U.S.) Mth. M.** ... *See Camb. (M.) Mth. M.*
- Card. Nt. S. T.** Cardiff Naturalists' Society. Reports and Transactions. Cardiff.
- 1868— B.M.i.; Camb.U.i.; Dub.R.D.S.; Geol.M.i.; Glasg.P.S.i.;
Linn.S.; N.H.M.; Oxon.B.i.; R.S.i.
- Carl Epm.** Repertorium für physikalische Technik, für mathematische und
astronomische Instrumentenkunde; Carl. München.
- 1865—91. B.M.; Camb.U.i.; Dub.N.L.I.i.; Oxon.R.; P.O.; R.S.
See Exner Epm.
- Časopis** Časopis pro Pěstování Matematiky a Fysiky. Prag.
- 1872— B.M.
- Catania Ac. Gioen. At.** ... Atti dell' Accademia Gioenia di Scienze Naturali in Catania. Catania.
- 1825— B.M.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.i.;
N.H.M.; Oxon.B.; R.S.
- Catania Ac. Gioen. Ell.** Bulletino mensile della Accademia Gioenia di Scienze Naturali in
Catania. Catania.
- 1888— Dub.R.I.A.; N.H.M.; R.S.
- Catania At. Ac. Gioen.** ... *See Catania Ac. Gioen. At.*
- CE. I. F.** Minutes of Proceedings of the Institution of Civil Engineers, con-
taining Abstracts of the Papers and of the Discussions. London.
- 1837— B.M.; Camb.P.S.; Camb.U.; Dub.R.C.S.; Dub.R.D.S.;
Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.;
Oxon.B.; Oxon.R.i.; P.O.; R.S.; U.C.L.
- See I. CE. F.*
- Chambéry Mm. Ac. Sav.** Mémoires de la Société Académique de Savoie. Chambéry.
- 1825— Camb.U.; Dub.R.I.A.; Dub.T.C.; N.H.M.; Oxon.B.; R.S.i.
See Sav. Ac. Mm. and Sav. Mm. Ac.
- Charleston MEd. J.** Charleston Medical Journal and Review; Gaillard, de Saussure, etc.
Charleston.
- 1846—60. B.M.
- Chemnitz B.** Bericht der Naturwiss. Gesellsch. zu Chemnitz. Chemnitz.
- 1859— Edinb.R.S.i.; N.H.M.; R.S.i.
- Cherb. Mm. S. Ac.** Mémoires de la Société Académique de Cherbourg. Cherbourg.
- 1833— B.M.; Camb.U.i.; Edinb.R.S.i.; N.H.M.i.; Oxon.B.i.
- Cherb. Mm. S. Sc.** Mémoires de la Société Impériale des Sciences Naturelles de Cher-
bourg. Cherbourg.
- Cherb. S. Sc. Mm.** } 1852— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.;
Linn.S.; N.H.M.; R.A.S.i.; R.S.
- Cherb. S. Sc. Nt. Mm.** ... }
- Chile A. Un.** Anales de la Universidad de Chile. Santiago de Chile.
- 1843— B.M.i.; Dub.T.C.; N.H.M.i.; Oxon.B.i.
See Santiago de Chile Un. A.

List of Serial Publications

- Chili S. Sc. Act.** Actes de la Société Scientifique du Chili (Sociedad científica de Chile). Santiago.
1892— B.M.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.S.i.
- Christiania F.** Forhandlinger i Videnskabs-Selskabet i Christiania. Christiania.
1859— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.; N.H.M.; Oxon.B.; R.S.; U.C.L.i.
- Christiania Skr. (Mth.-
Nt. Kl.)** Skrifter udgivne af Videnskabselskabet i Christiania. Mathe-
matisk-Naturvidenskabelig Klasse. Christiania.
1894— B.M.; Camb.P.S.; Dub.R.I.A.i.; Edinb.R.S.; Glasg.P.S.; N.H.M.; Oxon.B.; R.S.; U.C.L.i.
- Ciel et Terre** Ciel et Terre. Revue populaire d'Astronomie, de Météorologie et de
Physique du Globe. Bruxelles.
1881— B.M.; Edinb.R.S.i.; R.A.S.
- Civing.** Der Civilingenieur: Zeitschrift für das Ingenieurwesen. Freiberg,
Leipzig.
1854— B.M.; Camb.U.i.; Dub.R.I.A.i.; P.O.
- C. M.** The Chemical News and Journal of Physical Science. London.
1860— Camb.P.S.; Camb.U.i.; Chem.S.; Dub.N.L.I.i.; Dub.R.D.S.i.;
Dub.R.C.S.i.; Edinb.U.; Geol.M.; Glasg.P.S.; N.H.M.; Oxon.B.i.;
Oxon.R.; P.O.; R.S.; U.C.L.i.
- Cn. I. P.** Proceedings of the Canadian Institute, Toronto. Toronto.
1879—90; 1897— B.M.; Camb.P.S.i.; Dub.R.D.S.; Edinb.R.S.i.;
Edinb.U.; Glasg.P.S.; Math.S.i.; N.H.M.; Oxon.B.; P.O.; R.A.S.i.;
R.S.
- Cn. I. T.** Transactions of the Canadian Institute. Toronto.
1899— B.M.; Camb.P.S.; Dub.R.D.S.; Edinb.R.S.; Edinb.U.;
Glasg.P.S.; Linn.S.; Math.S.i.; N.H.M.; P.O.; R.A.S.; R.S.
- Cn. J.** The Canadian Journal of Industry, Science, and Art. Toronto.
1853—78. B.M.i.; Dub.R.I.A.; Edinb.R.S.; N.H.M.; P.O.;
R.A.S.i.; R.S.
- Cn. R. S. P. & T.** Proceedings and Transactions of the Royal Society of Canada.
Montreal.
1883— Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.i.; Dub.R.I.A.i.;
Dub.T.C.i.; Edinb.R.S.; Geol.M.i.; Glasg.P.S.; Linn.S.; N.H.M.;
Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Coimbra I.** O Instituto, jornal scientifico e litterario; Forjaz. Coimbra.
1853— B.M.
- Con. des Temps** Connaissance des Temps, à l'usage des Astronomes et des Navigateurs.
Paris.
1679— B.M.i.; Camb.U.; Dub.T.C.; Oxon.B.; R.A.S.i.; R.S.
- Conn. Ac. T.** Transactions of the Connecticut Academy of Arts and Sciences.
New Haven.
1866— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.;
Glasg.P.S.; Linn.S.; Math.S.i.; N.H.M.; Oxon.R.; P.O.; R.A.S.;
R.S.
- Conn. Mem. Ac.** Memoirs of the Connecticut Academy of Arts and Sciences. New Haven.
1810—16. Linn.S.i.; N.H.M.i.; R.S.
- Cornwall Pol. S. Ep.** Reports and Transactions of the Royal Polytechnic Society of
Cornwall. Falmouth.
1833— B.M.; Camb.U.i.; Dub.R.D.S.; Edinb.R.S.i.; Glasg.P.S.i.;
Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.i.; P.O.; R.S.; U.C.L.i.
- Cornwall R. I. J.** Journal of the Royal Institution of Cornwall. Truro.
1864— B.M.; Camb.U.i.; Dub.R.D.S.; Edinb.R.S.; Glasg.P.S.i.;
N.H.M.; Oxon.B.i.; P.O.; R.A.S.i.; R.S.i.; U.C.L.i.
- C. R.** Comptes Rendus hebdomadaires des Séances de l'Académie des
Sciences. Paris.
1835— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.;
Edinb.R.S.i.; Edinb.U.; Geol.M.i.; Glasg.P.S.i.; Linn.S.; N.H.M.;
Oxon.B.; Oxon.R.i.; P.O.; R.A.S.; R.S.; U.C.L.
- Cre. Ac. Sc. Bll.** Bulletin International de l'Académie des Sciences de Cracovie.
Cracovie.
1889— B.M.; Camb.U.; Chem.S.; Dub.R.I.A.i.; Edinb.R.S.;
Glasg.U.; N.H.M.; Oxon.B.; Oxon.R.i.; R.A.S.i.; R.S.; U.C.L.i.
- Crelle J.** Journal für die reine und angewandte Mathematik; Crelle. Berlin.
1826— B.M.; Camb.U.; Dub.N.L.I.; Dub.T.C.; Edinb.R.S.;
Edinb.U.; Glasg.U.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.

List of Serial Publications

- C. S. J.** The Quarterly Journal of the Chemical Society of London. London.
1849— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.C.S.;
Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Geol.M.i.;
Glasg.P.S.; N.H.M.i.; Oxon.B.; Oxon.R.i.; P.O.; R.S.;
U.C.L.
- Cuyper Ev. Un.** Revue Universelle des Mines, de la Métallurgie, des Travaux Publics,
des Sciences, et des Arts, appliqués à l'Industrie; de Cuyper.
Paris et Liège.
1857— B.M.; Camb.U.; Dub.R.I.A.i.; Glasg.P.S.i.; Glasg.U.i.;
N.H.M.; P.O.
- Cztg. Opt.** *See Ev. Un. Mines.*
Central-Zeitung für Optik und Mechanik. Leipzig.
1880— Edinb.U.i.; P.O.i.; R.S.i.
- D. Alpyr. Z.** Zeitschrift des Deutschen [und des Oesterreichischen] Alpenvereins.
München.
1870— B.M.; Camb.U.; Oxon.B.
- Danzig N. Schr.** Neueste Schriften der Naturforschenden Gesellschaft in Danzig.
Danzig.
1820—62. B.M.i.; Dub.R.I.A.i.; N.H.M.; Oxon.R.; R.S.
- Danzig Schr.** Schriften der Naturforschenden Gesellschaft in Danzig. Danzig.
1863— Camb.P.S.; Camb.U.i.; Dub.R.D.S.i.; Dub.R.I.A.i.;
Edinb.R.S.i.; Linn.S.i.; N.H.M.; Oxon.R.i.; R.S.
- Delft Éc. Pol. A.** Annales de l'Ecole Polytechnique de Delft. Leide.
1885—97. Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.
R.I.A.; Edinb.R.S.; Math.S.; R.A.S.; R.S.
- Des Moines Anal.** The Analyst: a monthly Journal of Pure and Applied Mathematics.
Des Moines, Iowa.
1874—83. Camb.U.; Edinb.R.S.; R.S.
- Devon. As. T.** Reports and Transactions of the Devonshire Association for the
Advancement of Science, Literature, and Art. Plymouth and
London.
1862— Camb.U.i.; Geol.M.; Linn.S.; N.H.M.; Oxon.B.; Oxon.
R.i.; P.O.; R.S.
- D. Gs. Ostas. Mt.** Mittheilungen der Deutschen Gesellschaft für Natur- und Völkerkunde
Ostasiens. Yokohama.
1873— B.M.; Edinb.R.S.i.
- Dijon Ac. Mm.** Mémoires de l'Académie des Sciences, Arts, et Belles-lettres de
Dijon. Dijon.
- Dijon Ac. Sc. Mm.** { 1769— B.M.i.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.;
Edinb.R.S.i.; N.H.M.; Oxon.B.i.; R.A.S.; R.S.i.
- Dijon Mm. Ac.** { Séances publiques de l'Académie des Sciences, Arts, et Belles-lettres
de Dijon. Dijon.
- Dijon Ac. Sé.** { 1810—29. B.M.i.; N.H.M.
- Dijon Sé. Ac.** { Polytechnisches Journal; Dingler. Stuttgart.
1820— B.M.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.C.S.i.;
Dub.R.D.S.i.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.; P.O.;
R.S.i.
- Dingler** Jahresbericht der deutschen Mathematiker-Vereinigung. Berlin,
Leipzig.
1890— Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; Math.S.i.; Oxon.B.;
R.S.
- D. Mth. Vr. Jbr.** Bericht über die Versammlung der Deutschen Naturforscher und
Aerzte.
1822—83. Irregular, *see* Tageblatt. Camb.U.i.; N.H.M.i.; Oxon.
R.i.; R.S.i.
- D. Mf. B.** *See D. Mf. Vam. B.*
Tageblatt der...Versammlung Deutscher Naturforscher und Aerzte.
1836— Irregular, *see* Ber. and Verh. Camb.U.; N.H.M.; Oxon.
R.i.
- D. Mf. Tbl.** Verhandlungen der Gesellschaft Deutscher Naturforscher und Aerzte.
Leipzig.
1890— Camb.U.; N.H.M.; Oxon.R.
- D. Mf. Vam. B.** *See D. Mf. B.*
- Dn. Vd. Selak. Skr.** Det Kongelige Danske Videnskabernes Selskabs Skriver. Kiöbenhavn.
1801—18. B.M.; Camb.P.S.i.; Camb.U.; Edinb.R.S.; N.H.M.;
Oxon.B.; R.S.
See Klöb. Dn. Vd. Selak. Skr.

List of Serial Publications

- Dorpat Sb.** Sitzungsberichte der Naturforscher-Gesellschaft zu Dorpat. Dorpat.
1861— Dub.R.I.A.i.; Edinb.R.S.i.; Geol.S.; N.H.M.; R.S.i.
- Douai Mm. S. Ag.** Mémoires de la Société d'Agriculture, de Sciences, et d'Arts, séant à Douai. Douai.
1826— B.M.; Camb.U.i.; Oxon.B.i.; R.S.i.
- Doubs S. Mm.** Mémoires et Comptes Rendus de la Société [Libre] d'Émulation du Doubs. Besançon.
1841— B.M.; N.H.M.i.
- Dresden Isis Sb.** Sitzungsberichte der Naturwissenschaftlichen Gesellschaft Isis in Dresden. Dresden.
1861— Camb.U.i.; Dub.T.C.; Geol.S.; N.H.M.
- Dresden Sb. Isis** The Dublin Philosophical Journal and Scientific Review. Dublin.
1825—26. B.M.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.i.; N.H.M.; Oxon.B.; Oxon.R.; R.S.i.
- Dubl. Ph. J.** Journal of the Royal Dublin Society. Dublin.
1856—75. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Geol.M.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.; R.A.S.; R.S.
- Dubl. S. Sc. P.** The Scientific Proceedings of the Royal Dublin Society. Dublin.
1877— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; Geol.M.; Glasg.P.S.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Dubl. S. Sc. T.** The Scientific Transactions of the Royal Dublin Society. Dublin.
1877— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Geol.M.; Glasg.P.S.; Linn.S.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Dunkerque Mm. S. Encour.** Mémoires de la Société Dunkerquoise pour l'Encouragement des Sciences, des Lettres, et des Arts. Dunkerque.
1853— B.M.; Oxon.B.; R.S.i.
- Edinb. J. Sc.** The Edinburgh Journal of Science, exhibiting a view of the progress of discovery in Natural Philosophy, Chemistry, Mineralogy, Geology, Botany, etc.; David Brewster. Edinburgh.
1824—1832. B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.S.
- Edinb. Mth. S. P.** Proceedings of the Edinburgh Mathematical Society. London and Edinburgh.
1883— B.M.; Camb.P.S.; Camb.U.; Edinb.R.S.; Edinb.U.; Glasg.U.; Math.S.; R.S.i.
- Edinb. N. Ph. J.** The Edinburgh New Philosophical Journal, exhibiting a view of the progressive Improvements, etc. in the Sciences, etc.; Robert Jameson. Edinburgh.
1826—64. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.i.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.
- Edinb. Ph. J.** The Edinburgh Philosophical Journal, exhibiting a view of the Progress of Discovery in Natural Philosophy, etc.; David Brewster and Robert Jameson. Edinburgh.
1819—26. B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Linn.S.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Edinb. P. R. S.** Proceedings of the Royal Society of Edinburgh. Edinburgh.
1845— B.M.i.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.; Edinb.R.S.; Edinb.U.; Geol.M.i.; Glasg.P.S.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.i.
- Edinb. R. S. P.** Transactions of the Royal Society of Edinburgh. Edinburgh.
1788— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Geol.M.i.; Glasg.P.S.; Glasg.U.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.
- Edinb. R. S. T.** See **Edinb. T. R. S.**
- Edinb. Sc. S. Arts T.** Transactions of the Royal Scottish Society of Arts. Edinburgh.
1841— B.M.i.; Camb.U.; Dub.R.D.S.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Glasg.U.; P.O.; R.S.
- See **Edinb. T. Sc. S. Arts and S. Sc. Arts T.**

List of Serial Publications

- Edinb. T. R. S.**..... See **Edinb. R. S. T.**
- Edinb. T. Sc. S. Arts**..... See **Edinb. Sc. S. Arts T. and Sc. S. Arts T.**
- Educ. Times** The Educational Times, and Journal of the College of Preceptors. London.
1847— B.M.; Camb.P.S.i.; Camb.U.i.; Dub.N.L.I.; Math.S.i.; Oxon.B.i.; Oxon.R.i.; R.S.i.
- Elect.** The Electrician. London.
1862— B.M.i.; Camb.P.S.i.; Camb.U.i.; Dub.N.L.I.i.; Dub.R.C.S.i.; Edinb.R.S.i.; Edinb.U.i.; Glasg.P.S.i.; Glasg.U.i.; Oxon.B.i.; Oxon.R.i.; P.O.; R.S.i.; U.C.L.i.
- Elekttech. Z.**..... Elektrotechnische Zeitschrift. Berlin, München.
1890— B.M.; Glasg.U.; P.O.
- Eng. S. T.**..... Transactions of the Society of Engineers. London.
1860— B.M.; Camb.U.; Dub.N.L.I.; Dub.R.C.S.; Glasg.P.S.i.; Oxon.B.; P.O.; R.S.i.
- Ens. Mth.** L'Enseignement Mathématique. Revue Internationale. Paris.
1899— Math.S.
- Épinal (Vosg.) A.** Annales de la Société d'Émulation du département des Vosges. Épinal.
1831— B.M.; R.S.i.
- Erdm. J. Fr. C.** Journal für praktische Chemie; Erdman, etc. Leipzig.
1834— B.M.; Camb.U.; Chem.S.; Dub.N.L.I.i.; Dub.R.C.S.i.; Dub.R.D.S.i.; N.H.M.; Oxon.B.; Oxon.R.; R.S.; U.C.L.i.
- Erfurt Ak. Jb.**..... Jahrbücher der königlichen Akademie gemeinnütziger Wissenschaften zu Erfurt. Erfurt.
1860— B.M.; N.H.M.
- Erfurt N. Acta** Nova Acta Academiæ Electoralis Moguntinæ Scientiarum utilium quæ Erfurti est. Erfurti.
1799—1809. B.M.i.; Camb.U.; N.H.M.; Oxon.B.i.; R.S.
- Erlang. Pa. Mtd. S. Sb.** ... } Sitzungsberichte der Physikalisch-Medicinischen Societät zu Erlangen. Erlangen.
Erlang. Sb. Pa. Mtd. S. ... }
- Erman Arch. Ra.** Archiv für wissenschaftliche Kunde von Russland; Erman. Berlin.
1841—67. B.M.; Camb.U.; N.H.M.; Oxon.B.; R.S.i.
- Eure J. d'Ag.** Journal d'Agriculture, de Médecine et des Sciences accessoires. Evreux.
1824—29. B.M.; R.S.
- Eure Rec. S. Ag.**..... Recueil de la Société d'Agriculture, Sciences, Arts, et Belles-lettres du département de l'Eure. Evreux.
1830—39. B.M.; Camb.U.; Oxon.B.; R.S.
- Eure Rec. Tr.** Recueil des Travaux de la Société Libre d'Agriculture, des Sciences, des Arts et des Belles-Lettres du département de l'Eure. Evreux.
1841— B.M.; Camb.U.; R.S.
- Eure S. Ag. Rec.**..... See **Eure Rec. S. Ag.**
- Évk.** A'Magyar Tudós Társaság' Évkönyvei. Pest. Continued as: A'Magyar Tudományos Akademia Évkönyvei. Budá.
1833—89. B.M.; Edinb.R.S.i.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.; U.C.L.i.
- Exner Epm.**..... Repertorium der Physik; Exner. München, Leipzig.
1865—91. B.M.; Camb.U.i.; Dub.N.L.I.i.; Edinb.U.; Oxon.R.; P.O.; R.S.
See **Carl Epm.**
- Férussac Bul. Sc. Mth.** ... Bulletin des Sciences Mathématiques, Astronomiques, Physiques, et Chimiques; Baron de Férussac. Paris.
1824—31. B.M.; Edinb.U.i.; Oxon.R.; P.O.; U.C.L.
- Finist. S. Sc. Bul.** Bulletin de la Société d'Études Scientifiques du Finistère. Morlaix.
1879— N.H.M.
- Firenze Ac. Georg. At.** ... } Atti della R. Accademia economico-agraria dei Georgofili. Firenze.
Firenze At. Ac. Georg. ... }
Firenze Opusc. Sc. Collezione d' Opuscoli scientifici, etc. Firenze.
1807—18. B.M.; N.H.M.
- Förster Al. Baustg.** Allgemeine Bauzeitung; Förster. Wien.
1836— B.M.; Camb.U.; P.O.
- Franklin I. J.** Journal of the Franklin Institute of the State of Pennsylvania. Philadelphia.
1828— B.M.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Glasg.P.S.i.; Oxon.B.; P.O.; R.A.S.i.; R.S.; U.C.L.i.

List of Serial Publications

- Fr. Cg. Md. Chir.** Congrès Médico-Chirurgical de France. Paris.
1863— B.M.
- Fr. Cg. Sc.** Sessions des Congrès Scientifiques de France.
1833—79. B.M.; Camb.U.; N.H.M.
- Freiburg B.** Berichte über die Verhandlungen der Naturforschenden Gesellschaft
zu Freiburg i. B. Freiburg i. B.
1855— B.M.; Camb.U.i.; Dub.R.I.A.; Linn.S.i.; N.H.M.;
Oxon.B.; R.S.
- Fr. S. Ag. Mm.** Mémoires d'Agriculture, d'Économie rurale et domestique publiés
par la Société d'Agriculture. Paris.
1801— B.M.; Edinb.R.S.i.; Oxon.B.
- Fr. S. Mn. Bll.** Bulletin de la Société Minéralogique de France. Meulan, Paris.
1878— B.M.; Dub.T.C.; Geol.M.; N.H.M.; Oxon.B.; R.S.
- Fachr. Mth.** Jahrbuch über die Fortschritte der Mathematik. Berlin.
1868— B.M.; Camb.U.; Dub.N.L.I.; Dub.R.C.S.; Edinb.U.;
Glasg.P.S.i.; Glasg.U.; Math.S.; Oxon.B.; R.S.; U.C.L.
- Fachr. Ph.** Die Fortschritte der Physik. Berlin.
1845— Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.i.; Dub.R.I.A.i.;
Edinb.R.S.i.; Edinb.U.; Glasg.U.; Oxon.B.(R.); P.O.; R.A.S.i.;
R.S.; U.C.L.
- Gand. A. Ac.** Annales Academiæ Gandavensis. Gandavi. (Ghent.)
1819—31. B.M.; Camb.U.; N.H.M.; Oxon.B.
- G. Arcad.** Giornale Arcadico di Scienze, etc. Roma.
1819— B.M.; N.H.M.i.; Oxon.B.
- Gard Aperçu Tr.** Notice [ou Aperçu analytique] des Travaux de l'Académie Royale du
Gard. Nîmes.
1807—? B.M.; Camb.U.; Oxon.B.
See Gard Not. Tr. Ac. and Gard Tr. Ac.
- Gard Mm. Ac.** Mémoires de l'Académie du Gard. Nîmes.
1832— B.M.; Camb.U.; Oxon.B.; R.S.i.
- Gard Not. Tr. Ac.** }
Gard Tr. Ac. } *See Gard Aperçu Tr.*
- Gen. I. Nt. Mm.** Mémoires de l'Institut National Gènevois. Genève.
1854— B.M.; Camb.U.; Dub.R.D.S.; N.H.M.i.; Oxon.B.; R.S.
- Gen. Mm. S. Ph.** Mémoires de la Société de Physique et d'Histoire Naturelle de
Genève. Genève.
1821— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.;
Edinb.R.S.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.i.;
R.A.S.i.; R.S.; U.C.L.i.
See Gen. S. Ph. Mm.
- Genova Mm. Ac.** Memorie dell' Accademia Imperiale delle Scienze di Genova. Genova.
1809—14. Camb.U.i.; N.H.M.i.; R.S.
- Genova Mm. I. Ligure** ... Memorie dell' Istituto Ligure. Genova.
1806. B.M.; Camb.U.; R.S.
- Genova Un. At.** Atti della R. Università di Genova. Genova.
1869— B.M.; Camb.U.; N.H.M.
- Gen. S. Ph. Mm.** *See Gen. Mm. S. Ph.*
- Gergonne A. Mth.** Annales de Mathématiques, pures et appliquées; Gergonne. Nîmes
et Paris.
1810—31. B.M.; Dub.T.C.; Edinb.U.i.; Glasg.U.; Oxon.B.(R.);
R.A.S.i.; R.S.; U.C.L.
- Gg. S. J.** Journal of the Royal Geographical Society of London. London.
1832—80. B.M.; Camb.P.S.i.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.;
Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.; Linn.S.;
N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.S.
- Gg. S. P.** Proceedings of the Royal Geographical Society of London. London.
1857—92. Camb.P.S.i.; Camb.U.; Dub.T.C.; Edinb.R.S.; Geol.M.;
Glasg.P.S.i.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.;
P.O.i.; R.A.S.i.; R.S.
- Giamb. Vico** Il Giambattista-Vico, giornale scientifico. Napoli.
1857. N.H.M.; Oxon.B.i.
See Il Giamb. Vico.
- Giessem Oberh. Ga. B.** ... Berichte der Oberhessischen Gesellschaft für Natur- und Heilkunde.
Giessen.
1847— B.M.i.; Camb.P.S.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.
R.S.i.; Glasg.P.S.i.; Linn.S.i.; N.H.M.; P.O.i.; R.S.i.

List of Serial Publications

- Gilbert A.** *Annalen der Physik*; Gilbert. Halle und Leipzig.
1799—1824. Camb.U.; Chem.S.; Edinb.U.; N.H.M.; Oxon.B.(R.);
P.O.; R.S.
- Gill Tech. Rep.** *The Technical Repository*; Gill. London.
1822—27. B.M.; Camb.U.; Edinb.R.S.i.; Oxon.B.; P.O.; R.S.i.
- Glasg. I. Eng. T.** *Transactions of the Institution of Engineers [and Shipbuilders] in
Scotland*. Glasgow.
1857— Camb.U.i.; P.O.; U.C.L.i.
- Glasg. P. Ph. S.** { *Proceedings of the Philosophical Society of Glasgow*. Glasgow.
1841— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.i.;
Edinb.R.S.; Geol.M.i.; Glasg.P.S.; Glasg.U.i.; N.H.M.; Oxon.B.;
P.O.i.; R.A.S.; R.S.
- Glasg. Ph. S. P.** {
- Gleanings Sc.** *Gleanings in Science*. Calcutta.
1829—31. B.M.; Edinb.R.S.i.; N.H.M.; U.C.L.i.
- Gl. Mg.** *The Geological Magazine or Monthly Journal of Geology*. London.
1864— B.M.; Camb.U.; Dub.N.L.I.; Dub.R.C.S.; Geol.M.;
Glasg.P.S.; Glasg.U.; Linn.S.; N.H.M.; Oxon.R.; P.O.i.; U.C.L.
- Gl. S. QJ.** *The Quarterly Journal of the Geological Society of London*. London.
1845— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.;
Geol.M.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.;
R.A.S.; R.S.; U.C.L.
- G. Mt.** *Giornale di Matematiche ad uso degli Studenti delle Università
Italiane*; Battaglini. Napoli.
1863— B.M.; Camb.U.; Dub.R.C.S.i.; Dub.R.I.A.i.; Math.S.i.;
Oxon.B.; R.S.; U.C.L.i.
- Görl. Ab.** *Abhandlungen der Naturforschenden Gesellschaft zu Görlitz*. Görlitz.
1827— B.M.; Camb.U.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; N.H.M.;
R.S.
- Göteb. Hndl.** *Göteborgs Kongl. Vetenskaps och Vitterhets Samhälles Handlingar*.
Göteborg.
1850— B.M.; Camb.P.S.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.
R.S.i.; N.H.M.; R.S.i.
- Gött. Ab.** *Abhandlungen der k. Gesellschaft der Wissenschaften*. Göttingen.
1843— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.i.;
Glasg.U.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; R.S.; U.C.L.i.
- Gött. Cm.** *Commentationes Societatis Regiæ Scientiarum Göttingensis*. Got-
tingæ.
1778—1808. B.M.i.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; Glasg.
U.i.; N.H.M.; Oxon.B.; R.S.; U.C.L.
- Gött. Nr.** *Commentationes recentiores Societatis, etc.* Göttingæ.
1808—37. B.M.; Camb.U.; Edinb.R.S.i.; N.H.M.; Oxon.B.;
Oxon.R.; R.A.S.i.; R.S.; U.C.L.
- Gött. Stud.** *Nachrichten von der k. Gesellschaft der Wissenschaften und der
Georg-Augusts-Universität zu Göttingen*. Göttingen.
1845— B.M.; Camb.P.S.; Camb.U.i.; Dub.R.D.S.i.; Dub.R.I.A.i.;
Dub.T.C.i.; Edinb.R.S.; Glasg.U.; Linn.S.; Math.S.i.; N.H.M.;
Oxon.B.; Oxon.R.; R.A.S.i.; R.S.
- Gould As. J.** *Göttinger Studien*; Kriche. Göttingen.
1845—47. N.H.M.; Oxon.B.i.; R.S.i.
- Gould As. J.** *The Astronomical Journal*; Gould. Cambridge, Mass.
1851—61. B.M.; Camb.U.; Glasg.U.i.; Oxon.B.; Oxon.R.i.;
R.A.S.; R.S.
- 's Gravenh. I. Ing. Ta.** *See As. J.*
Tijdschrift van het Koninklijk Instituut van Ingenieurs. 's Graven-
hage.
1869— B.M.
- Grenoble Ac. Delph. Bl.** *Bulletin de l'Académie Delphinale, ou Société des Sciences et Arts
de Grenoble*. Grenoble.
1846— B.M.; Camb.U.i.; Oxon.B.; R.S.i.
- Groningen A. Ac.** *Annales Academiæ Groninganiæ*. Groningæ.
1815—37. B.M.i.; Camb.U.; Dub.T.C.; Oxon.B.; R.S.
- Gruithuisen N. Analekt.** *Neue Analekten für Erd- und Himmelskunde*. Gruithuisen.
München.
1832—36. B.M.; R.A.S.; R.S.
- Grunert Arch.** *Archiv der Mathematik und Physik*; Grunert. Greifswald, Leipzig.
1841— B.M.; Camb.U.; Dub.N.L.I.; Dub.R.C.S.; Edinb.U.;
Glasg.U.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.i.
- See Arch. Mth. Ps.**

List of Serial Publications

- G. Teix. J. Sc.** *Journal de Sciencias Mathematicas e Astronomicas, publicado pelo Dr Francisco Gomes Teixeira. Coimbra.*
1878— *Math.S.; R.S.i.*
- Haarl. Ms. Teyl. Arch.** *Archives du Musée Teyler. Haarlem.*
1866— *B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; Glasg.P.S.; N.H.M.; Oxon.R.; R.A.S.; R.S.*
- Haarl. Ntk. Vh. Mtsch.** *Natuurkundige Verhandelingen van de [Bataafsche] Hollandsche Maatschappij der Wetenschappen te Haarlem. Haarlem.*
1799— *B.M.; Camb.U.i.; Dub.R.D.S.; N.H.M.; R.S.*
- Haidinger Ab.** *Naturwissenschaftliche Abhandlungen; Haidinger. Wien.*
1847—51. *Camb.U.; Chem.S.i.; Edinb.R.S.i.; Linn.S.; N.H.M.; R.A.S.i.; R.S.*
- Haidinger B.** *Berichte über die Mittheilungen von Freunden der Naturwissenschaften in Wien; Haidinger. Wien.*
1847—51. *Camb.U.; Chem.S.i.; Edinb.R.S.; Linn.S.; N.H.M.; R.A.S.; R.S.*
- Hain. Mm. S.** } *Mémoires et Publications de la Société des Sciences, des Arts et des*
Hain. S. Mm. } *Lettres du Hainaut. Mons.*
1839— *B.M.; Dub.T.C.i.; N.H.M.; Oxon.B.i.; R.S.i.*
- Hall Bij.** *Bijdragen tot de Natuurkundige Wetenschappen; Hall, etc. Amsterdam.*
1826—32. *B.M.; Camb.U.; N.H.M.; R.S.*
- Halle Ab. Nt. Vr.** *Abhandlungen des Naturwissenschaftlichen Vereins für Sachsen und Thüringen in Halle; Giebel. Berlin.*
1860— *B.M.; Camb.U.; N.H.M.i.; R.S.i.*
- Halle Nf. Gs. B.** *Bericht der Naturforschenden Gesellschaft zu Halle. Halle.*
1856— *Camb.U.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Oxon.R.i.; R.S.*
- Halle Z.** } *Zeitschrift für die gesammten Naturwissenschaften; herausgegeben*
Halle Z. Nw. } *von dem Naturwissenschaftlichen Vereine für Sachsen und Thüringen in Halle; Giebel. Berlin.*
1853— *B.M.; Camb.U.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; R.S.*
- Hamb. Mth. Gs. Mt.** } *See Z. Nw.*
..... } *Mittheilungen der Mathematischen Gesellschaft in Hamburg. Leipzig.*
1889— *Math.S.*
- Hammerschmidt Al.** *Allgemeine Oesterreichische Zeitschrift für den Landwirth, Forstmann und Gärtner; Hammerschmidt. Wien.*
- Hann. Archt.-Vr. Z.** } *Zeitschr. des Architekten- und Ingenieur-Vereins zu Hannover.*
Hann. Z. Archt.-Vr. } *Hannover.*
1855— *Camb.U.i.; P.O.*
- Heidl. Nt. Md. Vh.** } *Verhandlungen des Naturhistorisch-Medicinischen Vereins zu Heidelberg.*
Heidl. Vh. Nt. Md. } *Heidelberg.*
1857— *Camb.U.i.; Chem.S.i.; Dub.R.I.A.; Linn.S.i.; N.H.M.i.; R.S.i.*
- Helsingf. Acta** *Acta Societatis Scientiarum Fennicæ. Helsingfors.*
1842— *B.M.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; Oxon.B.; R.A.S.; R.S.*
- Helsingf. Bd.** *Bidrag till Kännedomen af Finlands Natur och Folk, utgifna af Finska Vetenskaps-Societeten. Helsingfors.*
1858— *B.M.; Camb.P.S.i.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; Oxon.B.; R.A.S.; R.S.*
- Helsingf. Öfv.** *Öfversigt af Finska Vetenskaps-Societetens Förhandlingar. Helsingfors.*
1853— *B.M.; Camb.P.S.i.; Camb.U.i.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.U.i.; N.H.M.; Oxon.B.; R.A.S.; R.S.*
- Hermbstädt Ms.** *Museum des Neuesten und Wissenswürdigen aus dem Gebiete der Naturwissenschaft, der Künste, der Fabriken, der Manufakturen, der technischen Gewerbe, der Landwirthschaft, der Produktenwaaren und Handelskunde, und der bürgerlichen Haushaltung, etc.; Hermbstädt. Berlin.*
1814—18. *B.M.; R.S.*
- Hertha** *Hertha, Zeitschrift für Erd-, Völker-, und Staaten-Kunde; Berghaus und Hoffmann. Stuttgart und Tübingen.*
1825—29. *B.M.; Camb.U.; Oxon.B.; R.S.; U.C.L.i.*
- I. Act. J.** *Journal of the Institute of Actuaries. London.*
1869— *B.M.; Camb.U.; Dub.N.L.I.i.; Oxon.B.; R.A.S.i.*

List of Serial Publications

- I. CE. P.** Minutes of Proceedings of the Institution of Civil Engineers, containing Abstracts of the Papers and of the Discussions. London.
1837— B.M.; Camb.P.S.i.; Camb.U.i.; Dub.R.C.S.; Dub.R.D.S.;
Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.;
Oxon.B.; Oxon.R.i.; P.O.; R.S.; U.C.L.
See CE. I. P.
- I. Égypt. Bul.** Bulletin de l'Institut Égyptien. Caire.
1859— Camb.P.S.i.; Camb.U.i.; N.H.M.; U.C.L.i.
- I. Égypt. Mm.** Mémoires ou Travaux Originaux présentés et lus à l'Institut Égyptien
publiés sous les auspices de S. A. Mohammed Saïd, vice-roi
d'Égypte, sous la direction de M. le Docteur B. Schnepf. Paris
& Caire.
1862— Camb.P.S.i.; Camb.U.; N.H.M.
- I. Elect. E. J.** Journal of the Institution of Electrical Engineers. London.
1889— B.M.; Camb.U.; Dub.R.D.S.; Edinb.R.S.i.; Edinb.U.;
Glasg.U.i.; Oxon.R.i.; P.O.; R.S.; U.C.L.
- II Cim.** Il Cimento, rivista di Scienze, Lettere, ed Arti. Torino.
1852—55. B.M.
- II Giamb. Vico** Il Giambattista-Vico, giornale scientifico. Napoli.
1857. N.H.M.; Oxon.B.i.
See Giamb. Vico.
- II Polit.** Il Politecnico; repertorio mensile di studj applicati alla prosperità
e cultura sociale.
Il Politecnico; repertorio di studj letterarj, scientifici e tecnici. Milano.
1839—44; 1860— B.M.; P.O.
- I. ME. P.** Institution of Mechanical Engineers. Proceedings. Birmingham,
London.
1847— B.M.; Camb.P.S.i.; Camb.U.; Dub.R.D.S.; Glasg.U.;
P.O.; R.S.; U.C.L.
- I. Min. Mtl. T.** Transactions of the Institution of Mining and Metallurgy, London.
1892— B.M.; Camb.U.i.; Geol.S.; N.H.M.; P.O.
- II Progresso** Il Progresso delle Scienze, Lettere, ed Arti. Napoli.
First series undated; Second series 1832— Camb.U.; Oxon.B.
- Ing.** Der Ingenieur; Zeitschrift für das gesammte Ingenieurwesen;
Bornemann. Freiberg.
1848—50. B.M.; P.O.
- Inghirami Opusc.** Nuova Collezione di Opuscoli e Notizie di Scienze; Inghirami.
Fiesole.
1820—23. B.M.
- Innsb. Nt. Md. B.** Berichte des Naturwissenschaftlich-Medizinischen Vereins in Inns-
bruck. Innsbruck.
1870— B.M.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Linn.S.i.;
N.H.M.; Oxon.R.; R.S.
- Intell. Obs.** The Intellectual Observer; a Review of Natural History, Microscopic
Research, and Recreative Science. London.
1862—68. B.M.; Camb.U.; Linn.S.; N.H.M.; Oxon.B.i.; Oxon.R.;
P.O.; R.A.S.; R.S.i.
- Iowa Ac. Sc. P.** Proceedings of the Iowa Academy of Sciences. Des Moines.
1875— B.M.i.; Edinb.R.S.i.; N.H.M.; Oxon.B.i.; P.O.; R.S.i.;
U.C.L.i.
- Ir. Ac. Cunningham Mm.** Royal Irish Academy. "Cunningham Memoirs." Dublin.
1880— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.;
Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.;
Edinb.U.; Glasg.P.S.; Linn.S.; N.H.M.i.; Oxon.B.; Oxon.R.;
R.A.S.; R.S.i.; U.C.L.
- Ir. Ac. P.** Proceedings of the Royal Irish Academy. (Science.) Dublin.
1841— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.;
Dub.R.C.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.;
Glasg.P.S.i.; Glasg.U.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.i.;
Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.i.
- Ir. Ac. T.** Transactions of the Royal Irish Academy. Science. Dublin.
1787— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.;
Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Glasg.P.S.;
Glasg.U.i.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.;
P.O.i.; R.A.S.; R.S.; U.C.L.
- I. Ev.** India Review and Journal of Foreign Science and the Arts. Calcutta.
1837—38. B.M.; N.H.M.i.

List of Serial Publications

- Indre S. Bul.** Bulletin de la Société de Statistique, des Sciences Naturelles, et des Arts Industriels du département de l'Isère. Grenoble.
1838— B.M.i.; N.H.M.; Oxon.B.; R.S.i.
- I. & S. I. J.** The Journal of the Iron and Steel Institute. London.
1872— Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.;
Edinb.U.; Geol.M.i.; Glasg.P.S.i.; Glasg.U.i.; Oxon.B.; P.O.;
R.S.; U.C.L.
- Jap. As. S. T.** Transactions of the Asiatic Society of Japan. Yokohama.
1872— B.M.; Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; Oxon.R.;
P.O.i.; R.S.
- Jb. Berg- Hw.** Jahrbuch für das Berg- und Hüttenwesen im Königreiche Sachsen.
Freiberg.
1873— B.M.; N.H.M.i.; P.O.
- J. Bot.** The Journal of Botany. London.
1863— B.M.; Camb.U.; Dub.N.L.I.i.; Dub.R.C.S.; Glasg.U.;
Linn.S.; N.H.M.; P.O.i.
- J. de Ph.** Journal de Physique, de Chimie, et de l'Histoire Naturelle;
de Lamétherie etc. Paris.
1794—1823. B.M.; Camb.U.; Glasg.U.i.; N.H.M.i.; Oxon.B.;
Oxon.R.; R.S.; U.C.L.i.
- J. de Ph.** Journal de Physique Théorique et Appliquée; D'Almeida. Paris.
1872— Camb.U.; Dub.R.C.S.; Glasg.U.i.; Oxon.R.; P.O.; R.S.
- Jena. Sh.** Sitzungsberichte der Jenaischen Gesellschaft für Medicin und
Naturwissenschaft. Jena.
1877—86. Edinb.R.S.i.; Linn.S.i.; Oxon.R.; R.S.
- Jena. Z.** Jenaische Zeitschrift für Naturwissenschaft, herausg. von der
Medicinisch-Naturwissenschaftlichen Gesellschaft zu Jena. Jena.
1864— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.;
Dub.R.D.S.i.; Edinb.R.S.; Edinb.U.i.; Glasg.U.i.; Linn.S.;
N.H.M.; Oxon.B.; Oxon.R.; R.S.; U.C.L.
- J. Gén. Civ.** Journal du Génie Civil des Sciences et des Arts. Paris.
1828—48. B.M.i.; Camb.U.; P.O.
- J. H. Un. Cir.** The Johns Hopkins University Circulars. Baltimore.
1879— Camb.P.S.; Camb.U.; Dub.N.L.I.i.; Dub.R.I.A.i.;
Edinb.R.S.i.; Edinb.U.; Glasg.P.S.; Math.S.i.; N.H.M.;
Oxon.B.; Oxon.R.; R.A.S.i.; R.S.; U.C.L.i.
- J. Micr. Sc.** Quarterly Journal of Microscopical Science; Lankester and Busk.
London.
1853— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.N.L.I.;
Dub.R.C.S.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Linn.S.;
N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.S.; U.C.L.
- J. Mines** Journal des Mines, ou Recueil de Mémoires sur l'exploitation des
Mines, et sur les Sciences et les Arts qui s'y rapportent. Paris.
1794—1815. B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.; Linn.S.i.;
N.H.M.; Oxon.B.(R.); R.S.i.
- J. Ph. C.** The Journal of Physical Chemistry. Ithaca, N.Y.
1896— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Edinb.R.S.;
Edinb.U.; Glasg.U.; Oxon.R.; P.O.; R.S.i.
- J. Sav.** Journal des Savants. Paris.
1816— B.M.; Camb.U.; Dub.N.L.I.; Dub.T.C.; Edinb.R.S.i.;
Glasg.U.i.; Oxon.B.; Oxon.R.; P.O.i.; R.S.
- J. Tél.** Journal Télégraphique publié par le Bureau International des
Administrations Télégraphiques. Berne.
1869— P.O.
- Kan. Ac. Sc. T.** Transactions of the Kansas Academy of Science. Topeka, Kansas.
1872— Camb.P.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.i.;
Linn.S.i.; N.H.M.; Oxon.B.i.; R.S.i.
- Kan. Un. Q.** The Kansas University Quarterly. Laurence, Kansas.
1893— B.M.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Glasg.
P.S.i.; Math.S.; N.H.M.; R.S.
- Karlsruhe Nt. Vr. Vh.** ... Verhandlungen des Naturwissenschaftlichen Vereins in Karlsruhe.
Karlsruhe.
1864— B.M.i.; Dub.R.I.A.; N.H.M.
- Karsten Arch.** Archiv für Mineralogie, Geognosie, Bergbau, und Hüttenkunde;
Karsten. Berlin.
1829—55. B.M.; Edinb.R.S.i.; Geol.M.; N.H.M.; P.O.; R.S.

List of Serial Publications

- Kastner Arch. Ntl.** Archiv für die gesammte Naturlehre; Kastner. Nürnberg.
1824—35. B.M.; N.H.M.; P.O.
- Kazan Mm. Un.** Scientific Memoirs published by the Imperial University of Kazan.
Kazan.
1834— B.M.i.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.i.; R.S.i.
See **Kazan Un. Mm.**
- Kazan S. Nt. (Ps.-Mth.) P.** Proceedings of the Physico-Mathematical Section of the Naturalists' Society of the Imperial University of Kazan. Kazan.
1883—90. R.S.
- Kazan S. Pa.-Mth. Bil.** ... Bulletin de la Société Physico-Mathématique de Kazan. Kazan.
1891— Dub.R.I.A.i.; Edinb.R.S.i.; R.S.i.
- Kazan Un. Bil.** Bulletin of the Imperial University of Kazan. Kazan.
1865— B.M.i.; Camb.U.i.; Edinb.R.S.i.; Linn.S.i.
- Kazan Un. Mm.** See **Kazan Mm. Un.**
- Kharkov Mth. S. Com.** Communications and Proceedings of the Mathematical Society of the Imperial University of Kharkov. Kharkov.
1879?— R.S.i.
- Kiel Schr.** Schriften der Universität zu Kiel. Kiel.
1855—80. B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.i.; Oxon.B.; R.S.
- Kiøb. Dn. Vd. Selsk. Afh.** } Det Kongelige Danske Videnskabernes Selskabs naturvidenskabelige og mathematiske Afhandlinger. Kiøbenhavn.
Kjøb. Dn. Vd. Selsk. Afh. } 1824—46. B.M.; Dub.T.C.; Edinb.R.S.; Linn.S.i.; N.H.M.; R.S.
- Kiøb. Dn. Vd. Selsk. Skr.** } Det Kongelige Danske Videnskabernes Selskab Skriver. Kiøbenhavn.
Kjøb. Dn. Vd. Selsk. Skr. } 1801—18. B.M.; Camb.P.S.i.; Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; R.S.
- See **Dn. Vd. Selsk. Skr.**
- Kjøb. Dn. Vd. Selsk. Skr.** } Det Kongelige Danske Videnskabernes Selskabs Skrifter. Naturvidenskabelig og Mathematisk Afdeling. Kjøbenhavn.
Kiøb. Skr. } 1849— B.M.; Camb.U.i.; Edinb.R.S.; Linn.S.; N.H.M.; R.A.S.; R.S.; U.C.L.i.
- Kjøb. Skr.** } Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger. Kjøbenhavn.
- Kiøb. Ov.** 1806— Camb.P.S.; Camb.U.i.; Chem.S.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.i.; Glasg.U.i.; Linn.S.i.; N.H.M.i.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.
- Kjøb. Ov.** Königsberger Archiv für Naturwissenschaften und Mathematik; Bessell, etc. Königsberg.
1812. B.M.; Camb.U.; Linn.S.
- Königsb. Arch.** Schriften der königlichen Physikalisch-Oekonomischen Gesellschaft zu Königsberg. Königsberg.
1860— B.M.; Camb.P.S.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.; N.H.M.; P.O.i.; R.S.
- Königsb. Sehr.** Kosmos. Czasopismo polskiego Towarzystwa przyrodników imienia Kopernika. [Cosmos. The Journal of the Polish Society of Naturalists founded in honour of Copernicus.] Lwow.
1876— B.M.; N.H.M.
- Krk. Ak. (Mt.-Prz.) Pam.** Pamiętnik Akademii Umiejętności w Krakowie. Wydział Matematyczno-Przyrodniczy. [Memoirs of the Academy of Science in Cracow. Section of Mathematics and Natural Science.] Kraków.
1874— B.M.; Edinb.R.S.i.; N.H.M.
- Krk. Ak. (Mt.-Prz.) Rz.** } Rozprawy... Wydziału Matematyczno-Przyrodniczego Akademii Umiejętności. [Proceedings of the Section of Mathematics and Natural Science of the Academy of Science.] Kraków.
Krk. Ak. (Mt.-Prz.) Rz. & Sp. } 1874— B.M.; Edinb.R.S.i.; N.H.M.
- Krk. Roczn. Tow. Nauk.** Rocznik Towarzystwa Naukowego z Uniwersytetem Krakowskim Połączonogo. Krakowie. [Annals of the Scientific Society of the Polish University of Krakow. Krakow.]
Krk. Roczn. Uniwers. ... 1817—72. B.M.
- Lanc. Hist. S. T.** Proceedings and Papers of the Lancashire and Cheshire Historic Society. Liverpool.
Lanc. T. Hist. S. 1849—54. Continued as: Transactions, etc., 1855— B.M.; Camb.U.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Glasg.P.S.i.; Oxon.B.i.; R.S.

List of Serial Publications

- Laus. Bil. S. Vd.** { Bulletin des Séances de la Société Vaudoise des Sciences Naturelles.
Laus. S. Vd. Bil. { Lausanne.
 1842— Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Linn.S.;
 N.H.M.; Oxon.B.i.; R.S.
Leic. S. T. The Transactions of the Leicester Literary and Philosophical Society.
 Leicester.
 1835— Camb.U.; Dub.R.D.S.; Geol.S.; Glasg.P.S.; Linn.S.i.;
 N.H.M.i.; Oxon.B.; P.O.; U.C.L.
Leijd. A. Ac. Annales Academiæ Lugduno-Batavæ. Leijden.
 1815—75. B.M.; Camb.U.; Dub.T.C.i.; N.H.M.; Oxon.B.; R.S.i.;
 U.C.L.i.
Leip. Ab. Jablon. Ga. Abhandlungen bei Begründung der k. Sächsischen Gesellschaft der
 Wissenschaften am Tage der zweihundertjährigen Geburtsfeier
 Leibnizens; herausg. v. d. Jablonowski'schen Gesellschaft zu
 Leipzig. Leipzig.
 1846. Camb.U.; Dub.R.I.A.; Edinb.R.S.; N.H.M.; R.A.S.; R.S.
Leip. Ab. Mth. Pa. Abhandlungen der Mathematisch-Physischen Classe der Königlich
 Sächsischen Gesellschaft der Wissenschaften. Leipzig.
 1852— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.;
 Glasg.U.; Math.S.i.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.;
 U.C.L.i.
Leip. Aa. Ga. Vjschr. See **Leip. Mth. Pa. Ab.**
 Vierteljahrschrift der Astronomischen Gesellschaft. Leipzig.
 1866— B.M.; Camb.P.S.i.; Camb.U.; Dub.R.I.A.; Edinb.R.S.;
 Oxon.R.; R.A.S.; R.S.
Leip. B. Berichte über die Verhandlungen (Math.-Phys. Classe) der König-
 lich Sächsischen Gesellschaft der Wissenschaften zu Leipzig.
 Leipzig.
 1846— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.;
 Glasg.U.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; R.A.S.; R.S.;
 U.C.L.i.
Leip. Jablon. Preisschr. See **Leip. Mth. Pa. B.**
 Preisschriften gekrönt und herausgegeben von der Fürstlich Jab-
 lonowski'schen Gesellschaft zu Leipzig. Leipzig.
 1847— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.;
 Oxon.B.; R.A.S.i.; R.S.i.; U.C.L.i.
Leip. Mth. Pa. Ab. See **Leip. Ab. Mth. Pa.**
Leip. Mth. Pa. B. See **Leip. B.**
Le Mans S. R. Tr. Analyse des Travaux de la Société [Royale] des Arts du Mans.
 Le Mans.
 1820. N.H.M.; R.S.
Les Mondes Les Mondes, Revue hebdomadaire des Sciences et de leurs Appli-
 cations aux Arts, et à l'Industrie; l'Abbé F. Moigno. Paris.
 1863— B.M.; Camb.U.i.; Dub.N.L.I.i.; Glasg.P.S.i.; Oxon.R.;
 P.O.; R.S.i.
L'I. L'Institut; Journal des Académies et Sociétés Scientifiques de la
 France et de l'Etranger. Paris.
 1833— B.M.i.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Glasg.P.S.i.;
 N.H.M.; Oxon.B.(R.); P.O.i.; R.S.i.
Liège A. Ac. Annales Academiæ Leodiensis. Liège.
 1817—27. B.M.; Camb.U.; Dub.T.C.; N.H.M.; Oxon.B.; R.S.
Liège Mm. S. Sc. Mémoires de la Société [Royale] des Sciences, de l'Agriculture, et
Liège S. Sc. Mm. { des Arts à Liège. Liège.
 1843— B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Glasg.P.S.i.;
 Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; P.O.; R.S.
Lille Mm. Mémoires de la Société [Royale] des Sciences, etc. à Lille. Lille.
Lille Mm. S. { 1827— B.M.; Camb.U.; Dub.T.C.; N.H.M.; Oxon.B.; Oxon.R.;
Lille S. Mm. { R.S.i.
Lille Tr. Recueil des Travaux de la Société d'Amateurs des Sciences, de
 l'Agriculture, et des Arts à Lille. Lille.
 1819—27. B.M.; Camb.U.; Dub.T.C.; N.H.M.; Oxon.B.; Oxon.R.;
 R.S.
Lille Tr. Mm. Travaux et Mémoires de l'Université de Lille. Lille.
 1889— Camb.P.S.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; N.H.M.;
 R.S.
Lindenau Z. Zeitschrift für Astronomie und verwandte Wissenschaften; Lindenau.
 Tübingen.
 1816—18. B.M.; Camb.U.; R.A.S.; R.S.

List of Serial Publications

- Liouv. J.** { Journal de Mathématiques pures et appliquées, fondé par Joseph Liouville. Paris.
- Liouv. J. Mth.** { 1836— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.
- Lisb. A.** Annaes das Sciencias e Lettras, publicados debaixo dos auspicios da Academia Real das Sciencias:—Sciencias mathematicas, physicas, historico-naturaes, e medicas. Lisboa.
- 1857— B.M.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; R.A.S.i.; R.S.i.
See **A. Sc.**
- Lisb. Ac. Sc. Mm.** Historia e Memorias da Academia Real das Sciencias de Lisboa. Lisboa.
- 1797— B.M.; Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; R.A.S.; R.S.i.
See **Lisb. Mm., Lisb. Mm. Ac. Sc. and Lisb. Mm. Sc.**
- Lisb. J. Sc. Mth.** Jornal de Sciencias mathematicas, physicas e naturaes. Publicado sob os auspicios da Academia R. das Sciencias de Lisboa. Lisboa.
- 1868— B.M.; Camb.U.; Dub.R.D.S.i.; Edinb.R.S.i.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.; R.A.S.; R.S.; U.C.L.i.
- Lisb. Mm.** {
- Lisb. Mm. Ac. Sc.** { See **Lisb. Ac. Sc. Mm.**
- Lisb. Mm. Sc.** {
- L. Mth. S. P.** Proceedings of the London Mathematical Society. London.
- 1865— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.; Math.S.; Oxon.B.i.; Oxon.R.; R.S.; U.C.L.
- Landw. V.-St.** Die landwirthschaftlichen Versuchs-Stationen. Organ für wissenschaftliche Forschungen auf dem Gebiete der Landwirthschaft. Dresden, Chemnitz.
- 1859— B.M.i.; Camb.U.; Chem.S.i.; Oxon.B.; P.O.i.; R.S.i.
- Lotos** Lotos. Zeitschrift für Naturwissenschaften. Prag.
- 1851—95. B.M.; Camb.U.; Dub.R.I.A.i.; N.H.M.
- Louvain A. Ac.** Annales Academiæ Lovaniensis. Bruxelles, Louvain.
- 1821—27. B.M.; Camb.U.; Dub.T.C.; Oxon.B.; R.S.
- Lpldina** Leopoldina: amtliches Organ der Kaiserlichen Leopoldino-Carolinischen Deutschen Akademie der Naturforscher. Dresden.
- 1859— B.M.; Camb.P.S.; Camb.U.i.; Edinb.R.S.i.; Linn.S.; N.H.M.; R.A.S.i.; R.S.
- Lpool Lt. Ph. S. P.** Proceedings of the Literary and Philosophical Society of Liverpool. London, Liverpool.
- 1844— B.M.; Camb.U.i.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.; Linn.S.; N.H.M.; Oxon.B.i.; P.O.i.; R.A.S.i.; R.S.; U.C.L.i.
- L. Ph. S. P.** Proceedings of the Physical Society of London. London.
- 1874— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.; Glasg.P.S.i.; Glasg.U.i.; Math.S.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Lucca At. Ac.** Atti della R. Accademia Lucchese di Scienze, Lettere, ed Arti. Lucca.
- 1821— B.M.; Camb.U.; Dub.T.C.i.; Oxon.B.i.
- Lum. Elect.** La Lumière Électrique. Journal universel d'Électricité. Paris.
- 1879—94. B.M.; Glasg.U.i.; P.O.
- Lund. Acta Un.** Acta Universitatis Lundensis. Lunds Universitets Års-skrift. Afdelningen för Matematik och Naturvetenskap. Lund.
- 1864— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.
- See **Lund. Un. Acta.**
- Lund Phys. Sällsk. Ts.** Physiografiska Sällskapets Tidskrift. Lund.
- 1837—38. Camb.U.; N.H.M.; R.S.
- Lund. Un. Acta** See **Lund. Acta Un.**
- Lux. I. R. Pb.** Publications de l'Institut Royal Grand-Ducal de Luxembourg. Section des Sciences Naturelles et Mathématiques: ci-devant "Société des Sciences Naturelles." Luxembourg.
- 1870— Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; R.S.i.
- Lux. S. Sc. Mm.** { Société des Sciences Naturelles du Grand-Duché de Luxembourg. Luxembourg.
- Lux. S. Sc. Nt.** { 1853—69. Dub.R.I.A.; R.S.
- Lyon Ac. Mm. (Sc.)** { Mémoires de l'Académie des Sciences, Belles-Lettres et Arts de Lyon. Classe des Sciences. Lyon, Paris.
- Lyon Ac. Sc. Mm.** {

List of Serial Publications

- 1845— B.M.; Camb.U.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.i.
See Lyon Mm. Ac. and Lyon Mm. Ac. Sc.
- Lyon A. S. Ag.** Annales des Sciences physiques et naturelles, d'Agriculture, et d'Industrie, publiées par la Société d'Agriculture, etc.
 Annales de la Société d'Agriculture, Histoire Naturelle et Arts Utiles de Lyon. Lyon.
 1838— B.M.; Camb.U.; Dub.R.I.A.; Linn.S.; N.H.M.; Oxon.B.; P.O.; R.S.
See Lyon S. A. Ag. and Lyon S. Ag. A.
- Lyon Mm. Ac.**
Lyon Mm. Ac. Sc.
Lyon S. A. Ag.
Lyon S. Ag. A.
Lyon Un. A.
See Lyon Ac. Mm. (Sc.) and Lyon Ac. Sc. Mm.
See Lyon A. S. Ag.
 Annales de l'Université de Lyon. Paris, Lyon.
 1891— B.M.; Edinb.R.S.; N.H.M.i.; R.S.i.
- Maclurian Lyceum Ct.**... Contributions of the Maclurian Lyceum to the Arts and Sciences. Philadelphia.
 1827—29. B.M.; Linn.S.i.; N.H.M.
- Mâcon Ac. A.** Annales de l'Académie de Mâcon, Société des Arts, Sciences, Belles-Lettres et d'Agriculture. Mâcon.
 1851— B.M. R.S.i.
- Mâcon S. C. R.** Compte Rendu des Travaux de la Société (d'Agriculture,) des Sciences, Arts et Belles-Lettres, de Mâcon. Mâcon.
 1807—52. B.M.i.; R.S.i.
- Madras Eng. Rp.** Reports, etc. on various professional subjects connected with the duties of the Corps of Engineers of the Madras Presidency; Capt. J. T. Smith, F.R.S. Madras.
 1839—46. P.O.; R.S.
- Madras J.**..... The Madras Journal of Literature and Science. Madras.
 1833— B.M.i.; Camb.U.; Dub.N.L.I.i.; Linn.S.i.; N.H.M.; Oxon.B.i.; P.O.; R.A.S.i.; R.S.i.; U.C.L.i.
- Madrid Ac. Cl. Mm.**
Madrid Mm.
Madrid Rv.
 Memorias de la Real Academia de Ciencias. Madrid.
 1850— B.M.; Camb.U.i.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.i.; U.C.L.i.
- Madrid Rv.** Revista de los Progresos de las Ciencias exactas, fisicas, y naturales. Madrid.
 1850—86. B.M.; Dub.R.D.S.i.; Edinb.R.S.i.; N.H.M.; Oxon.R.i.; R.A.S.i.; R.S.i.
- Mag. Ak. Éta.** Magyar akadémiai Értesítő. [Report of the Hungarian Academy.] Pest.
 1840—59. B.M.
- Mag. Ak. Éta. (Mth. Term.)** Magyar akadémiai Értesítő. A matematikai és természettudományi osztályok közlönye. [Report of the Hungarian Academy. Communications of the Mathematical and Natural Science sections.] Pest.
 1860—65. B.M.; Camb.P.S.i.; R.S.
- Magdeb. Nt. Vr. Jbr. u. Ab.** Jahresbericht und Abhandlungen des Naturwissenschaftlichen Vereins zu Magdeburg. Magdeburg.
 1869— B.M.; R.S.i.
- Mag. Tud. Ak. Étk. (Mth.)** Értekezések a Matematikai Osztály köréből. Kiadja a Magyar Tudományos Akadémia. [Memoirs on Mathematical subjects. Published by the Hungarian Academy of Science.] Pest.
 1867—94. B.M.; Edinb.R.S.i.; R.S.
- Mag. Tud. Ak. Éta.** A Magyar Tudományos Akadémia Értesítője. [Report of the Hungarian Academy of Science.] Pest.
 1867— B.M.
- Majocchi A. Fis. C.** Annali di Fisica, Chimica, e Matematiche, col Bulletino dell' Industria meccanica e chimica; Majocchi. Milano.
 1841—50. B.M.; R.S.
- Manch. Lt. Ph. S. Mm.**... Memoirs of the Literary and Philosophical Society of Manchester. London and Manchester.
 1785—1887. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Glasg.P.S.i.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.i.
See Manch. Mm. Ph. S., Manch. Ph. S. Mm. and Manch. S. Mm.
- Manch. Lt. Ph. S. Mm. & P.** Memoirs and Proceedings of the Manchester Literary and Philosophical Society. Manchester.

List of Serial Publications

- 1888— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.i.;
Edinb.R.S.; Glasg.P.S.; Linn.S.; Math.S.; N.H.M.; Oxon.B.;
Oxon R.; P.O.; R.A.S.; R.S.; U.C.L.i.
Manch. Lt. Ph. S. P. Proceedings of the Literary and Philosophical Society of Manchester.
Manchester.
1857—87. B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.;
Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.; Linn.S.; Math.
S.i.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.; U.C.L.i.
See **Manch. Ph. S. P.**
- Manch. Mm. Ph. S.** } See **Manch. Lt. Ph. S. Mm.**
Manch. Ph. S. Mm. }
Manch. Ph. S. P. See **Manch. Lt. Ph. S. P.**
Manch. S. Mm. See **Manch. Lt. Ph. S. Mm.**
Manch. S. P. See **Manch. Lt. Ph. S. P.**
Marb. Schr. Schriften der Gesellschaft zur Beförderung der gesammten Natur-
wissenschaften zu Marburg. Marburg.
1823— B.M.i.; Camb.U.; N.H.M.; Oxon.R.; R.S.
Mars. Fac. Sc. A. Annales de la Faculté des Sciences de Marseille. Marseille,
Paris.
1891— B.M.; Camb.P.S.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.;
Linn.S.; Math.S.i.; N.H.M.; R.A.S.; R.S.
Mathematician The Mathematician; Davies, etc. London.
1845—50. B.M.; Camb.U.; Dub.T.C.; Oxon.B.; R.S.
Mathesis Mathesis. Recueil Mathématique.... Gand, Paris.
1881— B.M.; Camb.U.
Mbl. Nt. Maanblad voor Natuurwetenschappen, uitgegeven door de Sectie voor
Natuurwetenschappen van het Genootschap ter Bevordering van
Natuur-, Genees- en Heelkunde. Amsterdam.
1871— N.H.M.
Medley I. Eng. Professional Papers on Indian Engineering; Major J. G. Medley.
Roorkee.
1864—68. P.O.i.; R.S.
Mengelwerk Wisk. Vh. Mengelwerk van uitgeleezene en andere Wis- en Natuurkundige Ver-
handeligen; door het Genootschap der Mathematische Weten-
schappen, etc. Amsterdam.
1796—1816. R.S.
See **Amst. Mengelwerk.**
- Mess. Mth.** The Messenger of Mathematics. Cambridge, London.
1862— B.M.; Camb.P.S.; Camb.U.; Dub.N.L.I.i.; Dub.R.C.S.i.;
Dub.R.D.S.i.; Edinb.R.S.i.; Edinb.U.; Glasg.U.; Math.S.i.;
Oxon.B.; Oxon.R.; R.S.; U.C.L.
M-et-L. Mm. S. Ac. Mémoires de la Société Académique de Maine et Loire. Angers.
1857— B.M.; Camb.U.; N.H.M.; R.S.i.
Met. S. QJ. Quarterly Journal of the Royal Meteorological Society. London.
1873— Camb.U.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.
S.i.; Oxon.R.; P.O.; R.A.S.; R.S.
Met. Z. Meteorologische Zeitschrift. Berlin.
1884— Camb.U.; Edinb.R.S.; P.O.; R.S.
Metz Ac. Mm. Mémoires de l'Académie (Royale, Impériale) de Metz. Metz.
Metz Mm. Ac. } 1821— B.M.; Camb.U.; Dub.T.C.; N.H.M.; Oxon.B.; R.S.i.
Mex. Arch. Com. Sc. Archives de la Commission Scientifique du Mexique, publiées sous
les auspices du Ministère de l'Instruction Publique. Paris.
1865—69. Oxon.B.; R.S.
Méz. Reg. Trim. Registro trimestre, ó Coleccion de Memorias de Historia, Literatura,
Ciencias, etc., por una Sociedad de Literatos. México.
1832—33.
Méz. S. "Alzate" Mm. Memorias de la Sociedad Científica "Antonio Alzate." México.
1887— B.M.i.; Camb.P.S.; Dub.R.I.A.; Edinb.R.S.; Linn.S.i.;
Math.S.i.; N.H.M.i.; R.A.S.; R.S.; U.C.L.i.
Mg. Ntvd. Magazin for Naturvidenskaberne; Lundh, etc. Christiania.
1823—36. B.M.; N.H.M.i.; R.S.
Mh. Mth. Pa. Monatshefte für Mathematik und Physik. Wien.
1890— B.M.; Camb.U.; Edinb.U.; Math.S.i.; N.H.M.
Midl. Ntlist. The Midland Naturalist. London, Birmingham.
1878—93. Camb.U.; Geol.M.; Linn.S.; P.O.
Mil. At. I. Lomb. Atti dell' I. R. Istituto Lombardo di Scienze, Lettere, ed Arti.
Milano.
1858—64. B.M.; Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; R.S.

List of Serial Publications

- Mil. Effem.** { Effemeridi Astronomiche di Milano. Con Appendice di Osservazioni
e Memorie Astronomiche. Milano.
1806— Camb.U.; Oxon.B.; R.A.S.i.
Mil. Effem. Aa. {
Mil. Ephem. Ac. Ephemerides Astronomicæ, ad Meridianum Mediolanensem supputatæ
ab Angelo de Cesaris. Accedit Appendix cum Observationibus et
Opusculis. Mediolani. (Milan.)
1774—1805. Oxon.B.
Mil. G. I. Lomb. Giornale dell' I. R. Istituto Lombardo di Scienze, Lettere, ed Arti,
e Biblioteca Italiana; compilata da varj dotti nazionali e stranieri.
Milano.
1841—56. B.M.; N.H.M.; Oxon.B.; R.S.
See **Mil. I. Lomb. G.**
Mil. G. S. Inc. Giornale della Società d' Incoraggiamento delle Scienze, etc. stabilità
in Milano. Milano.
1808—65. B.M.; Camb.U.
Mil. I. Lomb. G. See **Mil. G. I. Lomb.**
Mil. I. Lomb. Mm. Memorie dell' I. R. Istituto Lombardo di Scienze, etc. Milano.
1843— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.;
Edinb.R.S.i.; Math.S.i.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.;
U.C.L.i.
See **Mil. Mm. I. Lomb.**
Mil. I. Lomb. Rd. Reale Istituto Lombardo di Scienze e Lettere. Rendiconti. Milano.
1864— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.;
Math.S.i.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.; U.C.L.i.
Mil. Mm. I. Lomb. See **Mil. I. Lomb. Mm.**
Mil. Mm. I. Lomb. Ven. Memorie dell' I. R. Istituto del regno Lombardo-Veneto. Milano.
1819—38. B.M.; Camb.U.; N.H.M.; Oxon.B.i.; R.S.
Mitau Arb. Kurländ. Ga. Arbeiten der Kurländischen Gesellschaft für Literatur und Kunst.
Mitau.
1847—51. B.M.; Camb.U.
Mitau Quatember. Die Quatember; Zeitschrift für naturwissenschaftl., geschichtl.,
philolog. und gemischte Gegenstände; von Trautvetter. Mitau.
1829—30. B.M.
Mitau Send. Kurländ. Ga. Sendungen der Kurländischen Gesellschaft für Literatur und Kunst.
Mitau.
1840—47. B.M.
Mn. Mg. The Mineralogical Magazine and Journal of the Mineralogical
Society of Great Britain and Ireland. Truro, London.
1876— B.M.; Camb.U.; Chem.S.i.; Dub.N.L.I.; Geol.M.; N.H.M.;
Oxon.B.(R.); P.O.; R.S.
Mntp. Ac. Mm. Académie des Sciences et Lettres de Montpellier. Mémoires de la
Section des Sciences. Montpellier.
1847— B.M.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.;
Linn.S.i.; N.H.M.; Oxon.B.; R.A.S.; R.S.; U.C.L.i.
See **Mntp. Ac. Sc. Mm.**, **Mntp. Mm. Ac.** and **Mntp. Mm. Ac.**
Sect. Sc.
Mntp. Ac. FV. Extraits des Procès-Verbaux des Séances de l'Académie des Sciences
et Lettres, établie à Montpellier. Montpellier.
1847—54. N.H.M.i.
Mntp. Ac. Sc. Mm. }
Mntp. Mm. Ac. } See **Mntp. Ac. Mm.**
Mntp. Mm. Ac. Sect. Sc. }
Mntp. Mm. Ac. Sect. Md. Mémoires de l'Académie des Sciences et Lettres: Section de la
Médecine. Montpellier.
1849— B.M.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.i.;
Oxon.B.; R.S.
Mntp. Rec. Bll. Recueil des Bulletins publiés par la Société Libre des Sciences, etc.,
de Montpellier. Montpellier.
1803—14. B.M.; Camb.U.; Oxon.B.i.
Mod. Ac. Sc. Mm. { Memorie della Regia Accademia di Scienze, Lettere ed Arti di
Modena. Modena.
Mod. Mm. Ac. Sc. {
1833— B.M.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Math.S.i.;
N.H.M.; Oxon.B.i.; U.C.L.i.
Mod. Mm. S. It. { Memorie di Matematica e di Fisica della Società Italiana delle
Scienze. Modena.
Mod. S. It. Mm. {
1782— B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.;
Linn.S.i.; Oxon.B.i.; R.A.S.i.; R.S.; U.C.L.i.
See **Rm. S. It. Mm.**, **Verona Mm. S. It.** and **Verona S. It. Mm.**

List of Serial Publications

Mod. S. Nt. At	Atti della Società dei Naturalisti di Modena. Modena. 1883— Camb.U.; Dub.R.I.A.i.; N.H.M.
Moigno An. Cosmos	Annuaire du Cosmos; Moigno. Paris. 1859—70. B.M.
Moigno Cosmos	Cosmos. Révue Encyclopédique Hebdomadaire des Progrès des
Mondes (les)	Sciences; Moigno. Paris. 1852— B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; N.H.M.i.; Oxon.B.; P.O.i.; R.A.S.i.; R.S.
Mon. Sc.	Le Moniteur Scientifique du Chimiste et du Manufacturier; Quesneville. Paris. 1857— B.M.; Chem.S.i.; Dub.R.C.S.i.; Oxon.B.; P.O.; R.A.S.i.
Mosc. Bil. S. Nt.	Bulletin de la Société Impériale des Naturalistes. Moscou. 1829— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.i.; Edinb.R.S.i.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.
Mosc. Obs. A.	See Mosc. S. Nt. Bil. Annales de l'Observatoire de Moscou; Bredichin. Moscou. 1874— B.M.i.; Camb.U.; R.A.S.; R.S.
Mosc. S. Nt. Bil.	See Mosc. Bil. S. Nt.
Mosc. S. Sc. Bil.	Bulletin of the Imperial Society of Lovers of Natural Science, Anthropology and Ethnography, in connection with the Imperial University of Moscow. [In Russian.] Moscow. 1865— B.M.i.; Edinb.R.S.i.; N.H.M.i.
Mosc. Un. Mm.	Scientific Memoirs of the Imperial University of Moscow. [In Russian.] Moscow. — B.M.i.; Chem.S.i.; N.H.M.i.
Mosc. Un. Mm. (Ps.-Mth.)	Scientific Memoirs of the Imperial University of Moscow. Section Phys.-Math. Moscow. 1880—96. Chem.S.
Mth. A.	Mathematische Annalen; Clebsch. Leipzig. 1869— B.M.; Camb.P.S.; Camb.U.; Dub.N.L.I.i.; Dub.R.C.S.i.; Dub.R.D.S.i.; Dub.T.C.i.; Edinb.U.; Glasg.U.; Math.S.; Oxon.R.; R.S.; U.C.L.
Mth. Gz.	The Mathematical Gazette. London. 1894— B.M.; Camb.U.; Math.S.; U.C.L.i.
Mth. Misc.	The Mathematical Miscellany; Gill. New York. 1836—39. U.C.L.
Mth. Nt. B. Ung.	Mathematische und naturwissenschaftliche Berichte aus Ungarn. Berlin. 1882— Camb.P.S.; Chem.S.; Edinb.R.S.; R.A.S.i.; R.S.
Mth. Term. Éta.	Mathematikai és természettudományi Értesítő. Kiadja a Magyar
Mth. Term. Éta.	Tudományos Akadémia. [Mathematical and Natural Science Report, published by the Hungarian Academy of Science.] Budapest. 1883— B.M.i.; Edinb.R.S.; N.H.M.; R.S.
Mth. Tz.	Mathematisk Tidsskrift. Kjøbenhavn. 1859— B.M.; Camb.U.; Oxon.B.; R.S.i.
Mulhouse Bil.	Bulletin de la Société Industrielle de Mulhouse. Mulhouse. 1828— B.M.i.; Camb.U.i.; Chem.S.i.; Dub.R.C.S.i.; Dub.T.C.i.; Glasg.P.S.i.; Glasg.U.i.; Oxon.B.i.; P.O.
Mulhouse Bil. S. In.	Glasg.P.S.i.; Glasg.U.i.; Oxon.B.i.; P.O.
Mulhouse S. In. Bil.	Abhandlungen der mathematisch-physikalischen Classe der Königl.
Münch. Ab.	Bayerischen Akademie der Wissenschaften. München. 1832— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.; Linn.S.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.
Münch. Ak. Ab.	Sitzungsberichte der Mathematisch-Physikalischen Classe der K. B. Akademie der Wissenschaften zu München. München. 1871— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb.R.S.; Glasg.U.i.; Linn.S.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
Münch. Ak. Sb.	Denkschriften der Königl. Bayerischen Akademie der Wissenschaften zu München. München u. Salzburg. 1808—24. B.M.; Camb.P.S.; Camb.U.; N.H.M.; Oxon.R.; P.O.; R.S.
Münch. D.	Sitzungsberichte der Königl. Bayerischen Akademie der Wissen- schaften zu München. München. 1860—70. B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.B.; P.O.i.; R.A.S.; R.S.
Münch. Sb.	

List of Serial Publications

- N. A. Mth.** Nouvelles Annales de Mathématiques. Paris.
1842— B.M.; Camb.U.; Dub.T.C.; Edinb.U.; Glasg.U.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.i.
- Nancy Mm. S. Sc.** Mémoires de la Société [Royale] des Sciences, Lettres, et Arts de Nancy. Nancy.
1833— B.M.; Camb.U.i.; N.H.M.i.; Oxon.B.; R.S.i.
- Nancy S. Sc. Bil.** Bulletin de la Société des Sciences de Nancy. Nancy, Paris.
1873— B.M.; N.H.M.; R.S.
- N. Antol. Sc.** Nuova Antologia di Scienze, Lettere ed Arti. Firenze e Roma.
1866— B.M.; Dub.N.L.I.i.; N.H.M.
- Nap. Ac. At.** Atti della Reale Accademia delle Scienze e Belle Lettere; Sezione della Società R. Barbonica. Napoli.
1819—51. B.M.; Camb.U.; Dub.R.D.S.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.
Atti della R. Accademia delle Scienze Fisiche e Matematiche. Napoli.
1863—82; 1888— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; Glasg.U.i.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; R.A.S.i.; R.S.
See Nap. At. Ac. and Nap. At. Ac. Sc.
- Nap. Ac. Pont. At.** Atti dell' Accademia Pontaniana di Napoli. Napoli.
1832— B.M.; Camb.U.; Dub.R.D.S.i.; N.H.M.; R.S.i.; U.C.L.i.
- Nap. Ac. Sc. Mm.** Memorie della R. Accademia delle Scienze, etc. Napoli.
1852—57. B.M.; Camb.U.; Dub.R.D.S.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; R.A.S.; R.S.
See Nap. Mm. Ac. Sc.
- Nap. At. Ac.**) *See Nap. Ac. At.*
Nap. At. Ac. Sc.)
Nap. At. I. Inc. Atti del Real Istituto d' Incoraggiamento alle Scienze Naturali di Napoli. Napoli.
1811— B.M.; Camb.U.; Edinb.R.S.i.; N.H.M.; Oxon.B.; P.O.; R.S.i.
See Nap. I. Inc. At.
- Nap. At. S. Pont.** Atti della Società Pontaniana di Napoli. Napoli.
1810—47. B.M.; Camb.U.; N.H.M.; R.S.
See Nap. S. Pont. At.
- Nap. I. Inc. At.**) *See Nap. At. I. Inc.*
Nap. Mm. Ac. Sc.) *See Nap. Ac. Sc. Mm.*
Nap. Ma. Museo di Letteratura e Filosofia; Gatti. Napoli.
1842—62. B.M.; Oxon.B.
- Nap. Rd.** Rendiconto dell' Accademia delle Scienze Fisiche e Matematiche. Napoli.
1862— Camb.U.; Dub.R.I.A.; Edinb.R.S.; Glasg.U.i.; Linn.S.i.; Math.S.; N.H.M.; Oxon.R.i.; P.O.; R.A.S.; R.S.; U.C.L.i.
See Nap. At. S. Pont.
- Nap. S. Pont. At.**) *See Nap. At. S. Pont.*
N. Arch. Wisk. Nieuw Archief voor Wiskunde. Amsterdam.
1875— Camb.P.S.i.; Edinb.R.S.i.; Math.S.
- N. A. Sc. Nt.** Nuovi Annali delle Scienze naturali; Alessandrini, Bertoloni, Gherardi, e Ranzani. Bologna.
1838—54. Camb.U.; N.H.M.; Oxon.B.i.; R.S.
See Bologna N. A.
- N. Cim.** Il Nuovo Cimento, Giornale di Fisica, Chimica e Storia Naturale. Pisa.
1855— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Edinb.R.S.i.; N.H.M.; Oxon.R.i.; P.O.i.; R.S.
- Nebr. Un. Stud.** University Studies. Published by the University of Nebraska. Lincoln, Nebraska.
1888— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; Oxon.B.; R.S.
- N. Eng. I. Mn. E. T.** Transactions of the North of England Institute of Mining Engineers. Newcastle-upon-Tyne.
1852— B.M.; Camb.U.; Edinb.R.S.i.; Oxon.B.i.; P.O.i.; R.S.
- Neuch. Bil.**) Bulletin de la Société des Sciences Naturelles de Neuchâtel.
Neuch. S. Sc. Bil.) Neuchâtel.
1844— B.M.i.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.i.
- NH. Rv.** The Natural History Review and Quarterly Journal of Science. London and Dublin.

List of Serial Publications

- 1854—60. B.M.; Camb.U.; Dub.R.D.S.; Dub.T.C.; Glasg.P.S.; Linn.S.; N.H.M.; Oxon.R.; P.O.; U.C.L.i.
The Natural History Review; a Quarterly Journal of Biological Science. London.
- 1861—65. B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.; Glasg.P.S.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.S.
- Nicholson J.** Journal of Natural Philosophy, Chemistry, and the Arts; Nicholson. London.
1797—1813. B.M.; Camb.U.; Chem.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.
- Niort Mm. de l'Athénée** Mémoires de l'Athénée de Niort, Société Libre des Sciences et des Arts du département des Deux-Sèvres. Niort.
1808(?). B.M.; Oxon.B.; R.S.i.
- N. Jb. Min.** Neues Jahrbuch für Mineralogie, Geologie und Palaontologie. Stuttgart.
1833— B.M.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.D.S.i.; Geol.M.; N.H.M.; Oxon.R.; R.S.
- N. Mag. Ntvd.** Nyt Magazin for Naturvidenskaberne. Christiania.
1838— Camb.U.i.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.S.
- Norake Vd. Skr.** Det Kongelige Norske Videnskabselskabs Skrifter i det 19de Aarhundrede. Kjøbenhavn og Trondhjem.
1817— B.M.; Camb.U.i.; Dub.T.C.i.; Edinb.R.S.i.; N.H.M.; R.S. See **Thron. Skr.**
- N. Ra. S. Mt. Mm. (Mth.)** Memoirs of the Mathematical Section of the New Russian Society of Naturalists. [In Russian.] Odessa.
1878— B.M.i.; Dub.R.I.A.; Math.S.i.; R.S.i.
- N. S. W. Ph. S. T.** Transactions of the Philosophical Society of New South Wales. Sydney.
1866. Camb.P.S.; Camb.U.; Chem.S.; Edinb.R.S.i.; Glasg.U.; Linn.S.; Oxon.B.; R.A.S.; R.S.
- N. S. W. R. S. J.** Journal and Proceedings of the Royal Society of New South Wales. Sydney.
1876— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.T.C.; Edinb.R.S.i.; Geol.M.i.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.i.; R.A.S.; R.S.
- N. S. W. R. S. T.** Transactions of the Royal Society of New South Wales. Sydney.
1867—75. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.; Glasg.U.i.; N.H.M.; R.A.S.; R.S.
- Nt.** Nature: a weekly illustrated Journal of Science. London.
1870— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.i.; Linn.S.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- N. Ts. Mth.** Nyt Tidsskrift for Mathematik. Kjøbenhavn.
1890— B.M.; Math.S.i.
- Nürnb. Nt. Gs. Ab.** Abhandlungen der Naturhistorischen Gesellschaft zu Nürnberg. Nürnberg.
1852— B.M.i.; Camb.U.; Dub.R.I.A.; N.H.M.; R.S.i.
- Nv. Archt. T.** Transactions of the Institution of Naval Architects. London.
1860— B.M.; Camb.U.; Dub.R.I.A.; Edinb.U.; P.O.; R.S.; U.C.L.i.
- N.-Vorp. Mt.** Mittheilungen aus dem Naturwissenschaftlichen Vereine von Neu-Vorpommern und Rügen. Berlin.
1869— B.M.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; N.H.M.
- N. Y. Am. Mth. S. Bul.** Bulletin of the American Mathematical Society. New York.
1895— B.M.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Glasg.U.; Math.S.; Oxon.B.; Oxon.R.; R.S.i.
- N. Y. Am. Mth. S. T.** Transactions of the American Mathematical Society. Lancaster, Pa. and New York.
1900— Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.; Math.S.; Oxon.B.; Oxon.R.; R.S.
- N. Y. Mth. S. Bul.** Bulletin of the New York Mathematical Society. New York.
1892—94. B.M.; Camb.P.S.; Camb.U.; Edinb.R.S.; Glasg.P.S.; Math.S.; Oxon.B.; Oxon.R.; R.A.S.

List of Serial Publications

- N. Z. I. T.**..... Transactions and Proceedings of the New Zealand Institute. Wellington.
1868— B.M.; Camb.P.S.i.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Geol.M.i.; Glasg.P.S.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.S.; U.C.L.i.
- Obs.**..... The Observatory. A monthly Review of Astronomy. London.
1878— Camb.P.S.; Camb.U.; Dub.T.C.i.; Edinb.R.S.; Oxon.R.; P.O.; R.A.S.
- Oestr. Z. Bergw.**..... Oesterreichische Zeitschrift für Berg- und Hüttenwesen; von Otto Freiherrn von Hingenu. Wien.
1853— B.M.; P.O.
- Oken Isis**..... Isis, oder Encyclopädische Zeitung; Oken. Jena.
1817—48. B.M.i.; Camb.U.; Edinb.U.; Linn.S.i.; N.H.M.; Oxon.B.(R.); R.S.
- Opusc. Mt. Fis.**..... Opuscoli matematici e fisici di diversi Autori. Milano.
1832—34. R.S.
- Orv.-Termt. Éta. (Termt. Szak)**..... Orvos-Természettudományi Értesítő a Kolozsvári Orvos-Természettudományi Társulat és az Erdélyi Múzeum-Egyet Természettudományi Szakosztályának..... [Medical and Natural History Proceedings of the Sections of the Klausenburg Medical and Natural History Society and of the Natural History Section of the Museum Association of Transylvania.] Kolozsvár [Klausenburg].
1879— N.H.M.; R.S.i.
- Padova Ac. At. e Mm.**... Atti e Memorie della R. Accademia di Scienze, Lettere ed Arti in Padova. Nuova serie. Padova.
1885— Edinb.R.S.; N.H.M.
- Padova Mm. Ac.**..... Memorie dell' Accademia di Scienze, Lettere, ed Arti di Padova. Padova.
1809. B.M.; Camb.U.; N.H.M.; Oxon.B.; R.S.
- Padova N. Sag.**..... Nuovi Saggi dell' Accademia di Scienze, Lettere, ed Arti di Padova. Padova.
1817—83. B.M.i.; Camb.U.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; N.H.M.; Oxon.B.i.; R.S.i.
- Padova Rv. Period.**..... Rivista Periodica dei Lavori della I. R. Accademia di Scienze, Lettere, ed Arti di Padova. Padova.
1851— B.M.; Edinb.R.S.i.; N.H.M.; R.S.i.
- Palermo Ac. At.**..... (Atti dell' Accademia di Scienze, Lettere ed Arti di Palermo. Palermo.
1845— B.M.; Camb.U.i.; Dub.R.I.A.; Dub.T.C.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.
- Palermo At.**..... (Rendiconti del Circolo Matematico di Palermo. Palermo.
1887— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Math.S.; R.S.
- Palermo G. Sc. Nt.**..... Giornale di Scienze naturali ed economiche, pubblicato per cura del Consiglio di Perfezionamento annesso al R. Istituto Tecnico di Palermo. Palermo.
1865— B.M.; Camb.U.; Dub.R.D.S.i.; R.S.
- Palomba Rac.**..... Raccolta di Lettere, etc. intorno alla Fisica ed alle Mathematiche; Palomba. Roma.
1845—48. B.M.i.
- Par. A. Cons.**..... Annales du Conservatoire des Arts et Métiers. Paris.
1861— B.M.; Camb.U.; Glasg.P.S.i.; Oxon.B.; P.O.; R.S.
See **A. Cons. Arts et Mét.**
- Par. Ac. Sc. Mm.**..... Mémoires de l'Académie des Sciences de l'Institut de France. Paris.
1816— B.M.; Camb.U.; Dub.N.L.I.i.; Dub.R.D.S.i.; Dub.T.C.i.; Edinb.R.S.i.; Edinb.U.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.; U.C.L.
- Par. A. Éc. Norm.**..... See **Par. Mm. Ac. Sc.**
Annales scientifiques de l'École Normale Supérieure. Paris.
1864— B.M.; Camb.P.S.i.; Camb.U.; Dub.N.L.I.i.; Dub.R.C.S.i.; Dub.R.D.S.i.; Edinb.R.S.i.; Edinb.U.i.; Glasg.U.i.; Oxon.B.; R.S.
- Par. An. Mét.**..... See **Par. Éc. Norm. A.**
Annuaire de la Société Météorologique de France. Paris.
1849— B.M.; Camb.U.i.; Dub.T.C.i.; Edinb.R.S.i.; R.S.i.
- Par. An. S. Mét.**..... Annales de l'Observatoire de Paris; mémoires publiées par U. J. Le Verrier. Paris.

List of Serial Publications

- 1855— B.M.; Camb.U.; Dub.N.L.I.; Dub.T.C.; Edinb.R.S.; Oxon.B.; R.A.S.; R.S.
See Par. Obs. A. and Par. Obs. A. (Mm.)
- Par. A. Fon. Chauss.** Annales des Ponts et Chaussées. Mémoires et documents relatifs à l'Art des Constructions et au Service de l'Ingénieur. Paris.
 1831— B.M.; Camb.U.; Edinb.U.i.; Glasg.P.S.i.; Glasg.U.i.; P.O.; R.S.i.
See A. Fon. Chauss.
- Par. Bil. S. Encour.** Bulletin de la Société d'Encouragement pour l'Industrie Nationale. Paris.
 1802— Camb.U.; Dub.R.C.S.i.; Dub.T.C.i.; Edinb.R.S.i.; Glasg.P.S.i.; Oxon.B.; P.O.; R.S.
- Par. Bil. S. Gg.** Bulletin de la Société de Géographie. Paris.
 1822— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; Oxon.B.; R.S.; U.C.L.i.
See Par. Gg. S. Bil. and Par. S. Gg. Bil.
- Par. Bil. S. Phlm.** Bulletin des Sciences de la Société Philomathique de Paris. Paris.
 1791—1805; 1814—24; 1864— B.M.i.; Camb.U.; Dub.T.C.i.; Edinb.R.S.i.; Glasg.U.i.; Math.S.i.; N.H.M.; Oxon.R.i.; P.O.i.; R.A.S.i.; R.S.; U.C.L.
- See Par. S. Phlm. Bil.*
- Par. Éc. Norm. A.** *See Par. A. Éc. Norm.*
- Par. Éc. Pol. Cor.** Correspondance sur l'École Polytechnique, à l'usage des Élèves de cette École; Hachette. Paris.
 1808—18. B.M.i.; Oxon.B.; R.S.; U.C.L.
- Par. Éc. Pol. J.** Journal de l'École Polytechnique. Paris.
 1795— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; Linn.S.i.; Math.S.i.; Oxon.B.(R.); P.O.; R.A.S.i.; R.S.; U.C.L.i.
See Par. J. Éc. Pol.
- Par. Gg. S. Bil.** *See Par. Bil. S. Gg.*
- Par. Ing. Civ. Mm.** Mémoires et Comptes Rendus des Travaux de la Société des Ingénieurs Civils. Paris.
 1848— B.M.; Glasg.U.i.; P.O.
See Par. Mm. Ing. Civ.
- Par. J. Éc. Pol.** *See Par. Éc. Pol. J.*
- Par. Mm. Ac. Sc.** *See Par. Ac. Sc. Mm.*
- Par. Mm. de l'I.** Mémoires de la Classe des Sciences mathématiques et physiques de l'Institut. Paris.
 1798—1815. B.M.; Edinb.R.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; U.C.L.
- Par. Mm. Ing. Civ.** *See Par. Ing. Civ. Mm.*
- Par. Mm. Sav. Étr.** Mémoires présentés à l'Institut des Sciences, Lettres et Arts par divers Savans, et lus dans ses Assemblées: Sciences Mathématiques et Physiques. Paris.
 1806—11. B.M.; Camb.U.; Dub.R.D.S.; Dub.T.C.; Edinb.R.S.; N.H.M.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Par. Mm. S. Sav.** Mémoires présentés par divers Savans à l'Académie des Sciences de l'Institut de France. Paris.
 1827— B.M.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.
- Par. Obs. A.** 1801—02. B.M.; Oxon.B.; R.S.
See Par. A. Obs.
- Par. Obs. A. (Mm.)** *See Par. A. Obs.*
- Par. Poids et Mes. FV.** Comité International des Poids et Mesures. Procès-Verbaux des Séances. Paris.
 1875— Camb.P.S.; Camb.U.i.; Dub.R.D.S.; Oxon.R.; P.O.; R.A.S.; R.S.
- Par. S. Amat. Tr.** Notices des Travaux de la Société des Amateurs des Sciences physiques et naturelles de Paris. Paris.
 1807—08.
See Par. Tr. S. Amat.
- Par. S. Ap. Bil.** Bulletin de la Société d'Anthropologie de Paris. Paris.
 1860— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.i.; Oxon.R.; R.S.

List of Serial Publications

- Par. Sé. Éc. Norm.** Séances des Écoles Normales. Paris.
1800—01. R.S.; U.C.L.
- Par. S. Gg. Bil.** See **Par. Bil. S. Gg. and Par. Gg. S. Bil.**
- Par. S. Mth. Bil.** Bulletin de la Société Mathématique de France. Paris.
1873— B.M.; Camb.P.S.; Camb.U.; Edinb.R.S.; Math.S.;
Oxon.R.; R.A.S.; R.S.
- Par. S. Philm. Bil.** See **Par. Bil. S. Philm.**
- Par. S. Philm. Mm. Cent.** Mémoires publiés par la Société Philomathique à l'occasion du
Centenaire de sa Fondation. Paris.
1898. B.M.; Edinb.R.S.; N.H.M.; R.A.S.; R.S.
- Par. S. Philm. N. Bil.** Nouveau Bulletin des Sciences de la Société Philomathique de Paris.
Paris.
1807—1813; 1825—26; 1832—33. B.M.i.; Camb.U.; Dub.T.C.;
N.H.M.; P.O.i.; R.S.; U.C.L.
- Par. S. Philm. PV.** Extraits des Procès-Verbaux des Séances de la Société Philomathique.
Paris.
1836—63. N.H.M.; R.S.
- Par. T. Nauk Śc. Pam.** ... Pamiętnik Towarzystwa Nauk Ścisłych w Paryżu. Paris.
1871—82. B.M.; N.H.M.
- Par. Tr. S. Amat.** See **Par. S. Amat. Tr.**
- Perpignan Bil. S. Ag.** [Bulletin de la] Société Agricole, Scientifique, et Littéraire des
Pyrénées-Orientales. Perpignan.
1834— N.H.M.; R.S.i.
- Peterm. Mt.** Mittheilungen aus Justus Perthes' Geographischer Anstalt über
wichtige neue Erforschungen auf dem Gesamtgebiete der
Geographie; Petermann. Gotha.
1855— B.M.; Camb.U.; Dub.R.C.S.; Geol.M.i.; Glasg.P.S.i.;
Glasg.U.; N.H.M.i.; Oxon.B.; Oxon.R.; R.S.; U.C.L.i.
- Phil. Trans.** Philosophical Transactions of the Royal Society of London.
London.
1665— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.R.C.S.;
Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.
P.S.; Glasg.U.i.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.B.;
Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.i.
- Ph. Mg.** The London, Edinburgh, and Dublin Philosophical Magazine and
Journal of Science. London.
1827— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.D.S.; Dub.
R.I.A.; Edinb.R.S.; Edinb.U.; Geol.M.i.; Glasg.P.S.i.; Glasg.U.;
Linn.S.i.; Math.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.;
R.S.; U.C.L.
- Phm. J.** The Pharmaceutical Journal and Transactions. London.
1841— B.M.; Camb.U.; Chem.S.; Dub.N.L.I.i.; Dub.T.C.i.;
Glasg.P.S.; Glasg.U.i.; N.H.M.; Oxon.B.; Oxon.B.(R.); R.S.i.;
U.C.L.
- Ph. Stud.** Philosophische Studien herausgegeben von Wilhelm Wundt.
Leipzig.
1883— Camb.U.; Dub.T.C.; Edinb.U.; Oxon.B.; R.S.; U.C.L.
- Pisa A. Scuola Norm.** ... Annali della R. Scuola Normale Superiore di Pisa. Scienze Fisiche
e Matematiche. Pisa.
1871. Oxon.B.; Oxon.R.; R.S.
- Pisa A. Un. Tosc.** Annali delle Università Toscane. (Parte 2da.) Scienze Cosmo-
logiche. Pisa.
- Pisa A. Un. Tosc. Sc. Cosm.** 1846— Camb.U.i.; N.H.M.; R.S.i.
- Pisa N. G.** Nuovo Giornale de' Letterati. Pisa.
1822—39. B.M.; Camb.U.; Oxon.B.
- Pisa S. Tosc. At. (PV.)** ... Atti della Società Toscana di Scienze Naturali residente in Pisa.
Processi Verbali. Pisa.
1875— B.M.; Camb.P.S.i.; Dub.T.C.; N.H.M.; R.S.
- Pistoja At. Ac.** Atti della R. Accademia Pistoiese di Scienze, Lettere, ed Arti:
Memorie di Matematica e Fisica, per l'anno 1816. Pistoja.
1816. B.M.; Camb.U.; N.H.M.; Oxon.B.; R.S.
- Pogg. A.** Annalen der Physik und Chemie; Poggendorff. Leipzig.
1824— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.; Dub.R.I.A.;
Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.i.;
N.H.M.; Oxon.B.(R.); P.O.; R.S.; U.C.L.i.
- See **A. Pa. C.**
- Poligrafo** Il Poligrafo: Giornale di Scienze, Lettere, ed Arti; Orti. Verona.
1830—45. B.M.; Oxon.B.

List of Serial Publications

- Pol. Mt.** Polytechnische Mittheilungen, unter Mitwirkung von Professoren höherer technischer Lehranstalten. Tübingen. 1844—46. B.M.; R.S.
- Pop. As.** Popular Astronomy. Northfield, Minnesota. 1894— B.M.; Glasg.U.; R.A.S.
- Prace Mt.-Fiz.** Prace Matematyczno-Fizyczne. Warsaw. 1888— Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.i.; Math.S.; R.S.i.
- Prag Ab.** Abhandlungen der k. Böhmisches Gesellschaft der Wissenschaften. Prag. 1804—92. B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.i.; Edinb. R.S.i.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.i.
- Prag České Ak. Fr. Jos. Fam.** See **Böhm. Ga. Ab.** Památník na oslavu padesátiletého panovnického jubilea jeho veličenstva císaře a krále Františka Josefa I. Vydala Česká Akademie Císaře Františka Josefa pro Vědy, Slovesnost a Umění. [Memoirs in honour of the jubilee of his Imperial and Royal Majesty Franz Joseph I. Edited by the Imperial Bohemian Franz-Joseph Academy of Sciences, Literature and Art.] Praha. (Prag.) 1898. Camb.P.S.; N.H.M.
- Prag České Ak. Fr. Jos. Rz.** Rozprawy České Akademie Císaře Františka Josefa Pro Vědy, Slovesnost a Umění. [Memoirs of the Imperial Bohemian Franz-Joseph Academy of Sciences, Literature and Art.] Prag. 1891— B.M.; Edinb.R.S.; N.H.M.i.
- Prag Fr. Jos. Ac. Sc. Bill. (Mth. Nt.)** Académie des Sciences de l'Empereur François Joseph I (Česká Akademie Císaře Františka Josefa I). Bulletin International. Résumé des Travaux présentés. Sciences Mathématiques et Naturelles. Prag. 1897— Edinb.R.S.; N.H.M.i.
- Prag Jb. Böhm. Ms.** Jahrbücher des Böhmisches Museums für Natur- und Länderkunde, etc. Prag. 1830—31. B.M.; N.H.M.
- Prag Sb.** Sitzungsberichte der k. Böhmisches Gesellschaft der Wissenschaften in Prag. Prag. 1859— Camb.P.S.; Camb.U.i.; Dub.R.D.S.; Dub.R.I.A.i.; Edinb. R.S.i.; Linn.S.i.; N.H.M.; R.S.; U.C.L.i.
- Presse Sc.** Presse Scientifique des Deux Mondes. Paris. 1860—66. B.M.; R.S.i.
- Pa. Rv.** The Physical Review. New York, London, Berlin. 1894— B.M.; Camb.P.S.; Camb.U.; Dub.R.C.S.; Edinb.R.S.; Edinb.U.i.; Oxon.R.; P.O.; R.S.
- Pa. Z.** Physikalische Zeitschrift. Leipzig. 1899— Camb.P.S.; Edinb.U.; Oxon.R.; R.S.
- Queb. T.** Transactions of the Literary and Historical Society of Quebec. Quebec. 1829— B.M.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.i.; N.H.M.; R.S.i.
- Quetelet Cor. Mth.** Correspondance Mathématique et Physique; publiée par MM. Garnier et Quetelet. Gand et Bruxelles. 1825—39. B.M.; Camb.U.; R.A.S.i.; R.S.; U.C.L.
- QJ. Mth.** The Quarterly Journal of Pure and Applied Mathematics. London. 1855— B.M.; Camb.P.S.; Camb.U.; Dub.N.L.I.; Dub.T.C.; Edinb.R.S.i.; Edinb.U.; Glasg.P.S.i.; Glasg.U.; Math.S.i.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.
- QJ. Sc.** The Journal of Science and the Arts; edited at the Royal Institution of Great Britain. London. Continued as: Quarterly Journal of Science, Literature and Arts. London. 1816—30. B.M.; Camb.U.; Chem.S.; Dub.T.C.; Edinb.R.S.; Glasg.U.; Oxon.B.; Oxon.R.; R.S.; U.C.L.
- Railroad & Eng. J.** The Railroad and Engineering Journal. New York. 1887—92. B.M.; P.O.
- Ranuzzi An. Gg.** Annuario geografico Italiano; Ranuzzi. Bologna. 1844—45. B.M.; Camb.U.

List of Serial Publications

- Rec. Mth. (Moscou)** Recueil mathématique. Publié par la Société Mathématique de Moscou. [In Russian.] Moscou.
1866— R.S.
- R. E. Pp.** Papers on subjects connected with the duties of the Corps of Royal Engineers. London.
1844— Camb.U.; Geol.M.i.; Glasg.U.i.; P.O.i.
- Rheinl. Westphal. Sb.** ... Sitzungsbericht des Naturhistorischen Vereins der Preussischen Rheinlande und Westphalens. Bonn.
1844— Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.R.; R.S.i.
- Riga Cor.-Bl.** Correspondenzblatt des Naturforscher-Vereins zu Riga. Riga.
1846— B.M.; Dub.R.I.A.i.; N.H.M.; R.S.i.
- R. I. J.** Journal of the Royal Institution of Great Britain. London.
1802—03; 1830—31. Camb.U.i.; Chem.S.i.; Dub.R.D.S.; Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.i.; N.H.M.i.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.; U.C.L.i.
- Rio Arch. Palestr.** Archivos da Palestra Scientifica do Rio de Janeiro. Rio de Janeiro.
1858. N.H.M.; R.S.
- R. I. P.** Notice of the Proceedings at the meetings of the members of the Royal Institution, with Abstracts of the Discourses delivered at the Evening Meetings. London.
1851— B.M.; Camb.U.; Chem.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Geol.M.; Glasg.P.S.; Glasg.U.; Linn.S.; N.H.M.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Rm. At.** { Atti dell' Accademia Pontificia dei Nuovi Lincei. Roma.
Rm. At. N. Linc. { 1847— B.M.; Dub.R.I.A.; Edinb.R.S.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.
- See **Rm. N. Linc. At.**
Rm. At. R. Ac. Atti della Reale Accademia dei Lincei. Roma.
1870—83. B.M.; Camb.P.S.; Camb.U.i.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Linn.S.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.i.; R.A.S.i.; R.S.; U.C.L.i.
- See **Rm. R. Ac. Linc. At.**
Rm. Cor. Sc. Corrispondenza Scientifica in Roma per le avanzamento delle Scienze, etc. Roma.
1848—
See **Rm. S. Cor.**
- Rm. Mm. Osserv.** Memorie dell' Osservatorio dell' Università Gregoriana del Collegio Romano, diretto dai PP. della Compagnia di Gesù. Roma.
1850—63. B.M.; R.A.S.; R.S.
- Rm. N. Linc. At.** See **Rm. At. and Rm. At. N. Linc.**
Rm. N. Linc. Mm. Memorie della Pontificia Accademia dei Nuovi Lincei. Roma.
1887— Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; N.H.M.; R.S.
- Rm. R. Ac. Linc. At.** See **Rm. At. R. Ac.**
Rm. R. Ac. Linc. Mm. ... Atti della R. Accademia dei Lincei. Memorie della Classe di Scienze fisiche, matematiche e naturali. Roma.
1877— B.M.i.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.i.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.; R.S.; U.C.L.
- Rm. R. Ac. Linc. Rd.** Atti della R. Accademia dei Lincei. Rendiconti. Roma.
1885— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb.R.S.; Glasg.U.i.; Linn.S.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.
- Rm. R. Ac. Linc. T.** Atti della R. Accademia dei Lincei. Transunti. Roma.
1877—84. B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Linn.S.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.; R.A.S.; R.S.; U.C.L.
- Rm. S. Cor.** See **Rm. Cor. Sc.**
Rm. S. It. Mm. Memorie di Matematica e di Fisica, della Società Italiana delle Scienze. Napoli e Roma.
1782— B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.i.; Oxon.B.i.; R.A.S.i.; R.S.; U.C.L.i.
- See **Mod. Mm. S. It., Verona Mm. S. It. and Verona S. It. Mm.**
Rochester (N. Y.) Ac. Sc. P. Proceedings of the Rochester Academy of Sciences. Rochester, N.Y.
1890— B.M.; Camb.P.S.; Edinb.R.S.i.; Linn.S.; N.H.M.; R.S.; U.C.L.i.
- Rot. N. Vh.** Nieuwe Verhandelingen van het Bataafsch Genootschap der Proefondervindelijke Wijsbegeerte te Rotterdam. Rotterdam.

List of Serial Publications

- 1800— B.M.i.; Camb.U.i.; Chem.S.i.; Dub.R.D.S.; Edinb.R.S.i.; Oxon.B.; R.S.
Rouen Bil. S. Ém. Bulletins [des travaux] de la Société Libre d'Émulation de Rouen. Rouen.
 1837— B.M.; Oxon.B.
Rouen Ac. Tr. } Précis analytique des Travaux de l'Académie des Sciences, Belles-
Rouen Tr. Ac. } Lettres, et Arts de Rouen. Rouen.
 1804— B.M.; Camb.U.; Dub.R.I.A.; Dub.T.C.; N.H.M.i.; Oxon.B.; R.S.i.
Rpm. Mth. Repertorium der literarischen Arbeiten aus dem Gebiete der reinen und angewandten Mathematik. Leipzig.
 1877—79. Camb.U.; R.S.
Rpm. Ph. Repertorium der Physik. Enthaltend eine vollständige Zusammenstellung der neuern Fortschritte dieser Wissenschaft. Berlin.
 1837—49. Chem.S.; Glasg.P.S.i.; P.O.; R.S.; U.C.L.
Rs. Gg. Ga. D. Denkschriften der Russischen Geographischen Gesellschaft zu St Petersburg. Weimar.
 1849. B.M.; Camb.U.; R.S.
R. S. P. Proceedings of the Royal Society of London. London.
 1832— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.N.L.I.i.; Dub.R.C.S.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.i.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
Rs. Ph.-C. S. J. Journal of the Russian Physico-Chemical Society of the Imperial University of St Petersburg. [In Russian.] St Petersburg.
 1869— Camb.P.S.i.; Chem.S.; Edinb.R.S.i.; N.H.M.
R. S. Yearbook Yearbook of the Royal Society of London. (Biography. 1900.)
Rv. Artl. Revue d'Artillerie. Paris, Nancy.
 1872— B.M.; P.O.
Rv. Brazil. Revista Brasileira, Jornal de Sciencias, Lettras, e Artes; Oliveira. Rio de Janeiro.
 1857—61. B.M.; N.H.M.; R.S.i.
Rv. Cours. Sc. Revue des Cours Scientifiques de la France et de l'Étranger; Eug. Yung et Em. Alglave. Paris.
 1863—70. B.M.; Edinb.R.S.i.; Edinb.U.; N.H.M.; Oxon.R.; P.O.; R.S.
Rv. Ligure Rivista Ligure, giornale di Lettere, Scienze, etc. Genova.
 1843. B.M.; N.H.M.; Oxon.B.
Rv. Mar. (Revue maritime et coloniale. Paris.
Rv. Mar. et Col. 1861— B.M.; Oxon.B.; Oxon.R.; P.O.
Rv. Mt. Rivista di Matematica. Torino.
 1891—95. Camb.U.; Oxon.B.; R.S.
Rv. Mth. Revue de Mathématiques. (Rivista di Matematica.) Turin.
 1896— Camb.U.; Oxon.B.; Oxon.R.; R.S.
Rv. Sc. La Revue Scientifique de la France et de l'Étranger. Paris.
 1871— B.M.; Camb.U.; Edinb.R.S.; Edinb.U.; N.H.M.; Oxon.R.; P.O.; R.A.S.i.; R.S.
Rv. Sc.-Ind. Rivista Scientifico-Industriale delle principali scoperte ed invenzioni fatte nelle scienze e nelle industrie. Firenze.
 1869— P.O.
Rv. Un. Mines Revue Universelle des Mines, de la Métallurgie, etc. Liège & Paris.
 1857— B.M.; Camb.U.; Dub.R.I.A.i.; Glasg.P.S.i.; Glasg.U.i.; N.H.M.; P.O.
 See **Cuyper Rv. Un.**
S. Afr. Ph. S. T. The Transactions of the South African Philosophical Society. Cape Town.
 1878— B.M.; Camb.P.S.; Camb.U.i.; Chem.S.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.
S. Afr. QJ. The South African Quarterly Journal; edited at the African Institution. Cape Town.
 1830—35. B.M.i.; Edinb.R.S.i.; N.H.M.
Santiago de Chile Un. A. Anales de la Universidad de Chile. Santiago de Chile.
 1843— B.M.i.; Dub.T.C.; N.H.M.i.; Oxon.B.i.
 See **Chile A. Un.**
Sarthe S. Bil. Bulletin de la Société d'Agriculture, etc., de la Sarthe. Le Mans.
 1833— R.S.i.

List of Serial Publications

- S. Aust. R. S. T.** Transactions and Proceedings and Report of the Royal Society of South Australia. Adelaide.
1877— Camb.P.S.i.; Camb.U.i.; Chem.S.i.; Dub.R.I.A.i.; Edinb. R.S.; Linn.S.i.; N.H.M.; P.O.; R.A.S.; R.S.i.
- Sav. Ac. Mm.** } Mémoires de la Société Académique de Savoie. Chambéry.
Sav. Mm. Ac. } 1825— Camb.U.; Dub.R.I.A.; Dub.T.C.; N.H.M.; Oxon.B.; R.S.i.
See **Chambéry Mm. Ac. Sav.**
- Sc. Abs.** Science Abstracts. Physics and Electrical Engineering. London.
1898— Camb.P.S.; Camb.U.; Chem.S.; Edinb.R.S.i.; Edinb.U.; Glasg.P.S.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.
- Sch. Ga. N. D.** Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesammten Naturwissenschaften. Neuchâtel, Zürich, etc.
1837— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.
See **Zür. N. D. Sch. Ga.**
- Sch. Ga. Vh.** Verhandlungen der Schweizerischen Gesellschaft für die gesammten Naturwissenschaften. Aarau, etc.
1823— B.M.i.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.S.
See **Sch. Nl. Ga. Vh.**
- Schlömilch Z.** Zeitschrift für Mathematik und Physik; Schlömilch. Leipzig.
1858— B.M.; Camb.U.; Dub.N.L.I.i.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.U.; Glasg.U.i.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.i.
See **Z. Mth. Pa.**
- Sch. Nl. Ga. Vh.** See **Sch. Ga. Vh.**
- Schumacher As. Ab.** Astronomische Abhandlungen; Schumacher. Altona.
1823—25. B.M.; Camb.U.; Dub.R.D.S.; Edinb.R.S.; R.A.S.; R.S.
- Schweigger J.** Journal für Chemie und Physik; Schweigger. Nürnberg.
1811—29. Edinb.R.S.; N.H.M.; Oxon.R.; P.O. Continued as:
Neues Jahrbuch der Chemie und Physik; Schweigger-Seidel. Berlin.
1831—33. B.M.; Chem.S.; Edinb.R.S.; N.H.M.; Oxon.R.; P.O.; R.S.
- Science** Science. Cambridge, Mass., and New York.
1893— B.M.; Dub.N.L.I.i.; Dub.R.C.S.i.; Edinb.R.S.; Edinb. U.i.; Glasg.P.S.i.; N.H.M.; Oxon.R.i.; P.O.; R.A.S.i.
- Sc. S. Arts T.** Transactions of the Royal Scottish Society of Arts. Edinburgh.
1841— B.M.i.; Camb.U.; Dub.R.D.S.; Edinb.R.S.; Edinb.U.; Glasg.P.S.; Glasg.U.; P.O.; R.S.
See **Edinb. Sc. S. Arts T. and Edinb. T. Sc. S. Arts.**
- Sid. Mess.** The Sidereal Messenger. Northfield, Minn.
1883—91. B.M.; R.A.S.
- Siena At. Ac.** Atti dell' Accademia delle Scienze di Siena detta de' Fisis-critici. Siena.
1761— B.M.; Camb.U.i.; Dub.R.I.A.i.; Dub.T.C.i.; N.H.M.i.; Oxon.B.; R.S.i.
- Silliman J.** The American Journal of Science and Arts; Silliman. New Haven.
1818— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.N.L.I.i.; Dub.R.C.S.i.; Dub.T.C.i.; Edinb.R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.
See **Am. J. Sc.**
- Skandia** Skandia. Tidskrift för Vetenskap och Konst; utgifven af Svenska Litteratur-Föreningen. Upsala.
1833—37. B.M.
Förhandlingar vid det af Skandinaviska Naturforskare och Läkare hållna Möte..... Götheborg, etc.
1839— Oxon.B.i.; R.S.i.
Forhandlingerne ved de Skandinaviske Naturforskeres...Møde.... Götheborg, etc.
1839— B.M.; N.H.M.; R.S.i.
- Sk. Nl. F.** }
Sk. Nt. Mgd. F. }
Sk. Nt. Möt. F. }
- Smiths. Ct.** Smithsonian Contributions to Knowledge. Washington.
1848— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb. R.S.; Edinb.U.; Geol.M.i.; Glasg.P.S.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.i.; R.A.S.; R.S.; U.C.L.i.
- Smiths. Misc. Col.** Smithsonian Miscellaneous Collections. Washington.
1862— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb. R.S.; Edinb.U.; Geol.M.; Glasg.P.S.; Glasg.U.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.i.; R.A.S.; R.S.; U.C.L.i.

List of Serial Publications

- Smiths. Rp.** Annual Report of the Board of Regents of the Smithsonian Institution. Washington.
1846— B.M.i.; Camb.P.S.; Camb.U.; Dub.T.C.; Edinb.R.S.i.; Geol.M.; Glasg.P.S.i.; Glasg.U.; Linn.S.i.; Math.S.i.; N.H.M.i.; Oxon.B.; Oxon.R.i.; P.O.i.; R.A.S.i.; R.S.i.; U.C.L.i.
- Spet. It. Mm.** Memorie della Società degli Spettroscopisti Italiani, raccolte e pubblicate per cura del Prof. P. Tacchini. Palermo.
1872— B.M.i.; Camb.U.; Edinb.R.S.i.; P.O.; R.A.S.; R.S.
- Steierm. Mt.** Mittheilungen des Naturwissenschaftlichen Vereins für Steiermark. Graz.
1863— B.M.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.S.; U.C.L.i.
- St. Gal. B.** Bericht über die Thätigkeit der St. Gallischen Naturwissenschaftlichen Gesellschaft. St. Gallen.
1860— N.H.M.; R.S.i.
- St. Louis Ac. T.** The Transactions of the Academy of Science of St. Louis. St. Louis.
1856— B.M.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.; Linn.S.i.; N.H.M.; Oxon.B.; P.O.i.; R.S.
- Stockh. Ac. Hndl** Kongliga Svenska Vetenskaps-Akademiens Handlingar. Stockholm.
1739— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.i.; N.H.M.; R.A.S.; R.S.
- Stockh. Ak. Hndl** {
Edinb.R.S.i.; Glasg.P.S.i.; Linn.S.i.; N.H.M.; R.A.S.; R.S.
- Stockh. Ak. Hndl. Bh.** ... Bihang till Kongl. Svenska Vetenskaps-Akademiens Handlingar. Stockholm.
1872— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.; Linn.S.i.; N.H.M.; R.A.S.; R.S.
- Stockh. Öfv.** Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Stockholm.
1844— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.R.; R.A.S.; R.S.; U.C.L.i.
- Stockh. Vt. Ak. Lefn.** ... Lefnadsteckningar öfver Kongl. Svenska Vetenskaps Akademien... ledamöter. Stockholm.
1869—73. Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.; Linn.S.i.; R.A.S.; R.S.
- St. Pét. Ac. Mm.** Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg. St. Pétersbourg.
1803— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.; Edinb.U.; Glasg.U.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.S.; U.C.L.i.
- St. Pét. Ac. Sc. Bll.** See **St. Pét. Ac. Sc. Mm.**, **St. Pét. Mm.** and **St. Pét. Mm. Ac. Sc.**
Bulletin Scientifique publié par l'Académie Impériale des Sciences de St. Pétersbourg. St. Pétersbourg.
1836—42.
Bulletin de la Classe Physico-mathématique de l'Académie Impériale des Sciences de St. Pétersbourg. St. Pétersbourg and Leipzig.
1843—59.
Bulletin de l'Académie des Sciences de St. Pétersbourg. St. Pétersbourg.
1860— B.M.i.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Glasg.U.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.i.; R.A.S.i.; R.S.
- St. Pét. Ac. Sc. Mm.** See **St. Pét. Ac. Sc. and St. Pét. Bull. Sc.**
- St. Pét. Ac. Sc. Mm. (Rs.)** See **St. Pét. Ac. Mm.**
Memoirs of the Imperial Academy of Science. [In Russian.] St. Petersburg. Not the same as **St. Pét. Ac. Mm.**
1862—95. B.M.; Dub.R.I.A.
- St. Pét. Ac. Sc. N. Acta...** Nova Acta Academiae Scientiarum Imperialis Petropolitanae. Petropoli.
1783—1802. B.M.; Camb.U.; Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.i.; R.S.; U.C.L.
- St. Pét. Ac. Sc. Rec.** Recueil des Actes des Séances Publiques de l'Académie Impériale des Sciences de St. Pétersbourg. St. Pétersbourg.
1827—48. B.M.; Camb.U.; Chem.S.i.; Dub.R.I.A.i.; Edinb.R.S.; N.H.M.; Oxon.B.; Oxon.R.i.; R.A.S.; R.S.
- St. Pét. Bll. Ac. Sc.** {
St. Pét. Bll. Sc. { See **St. Pét. Ac. Sc. Bll.**
- St. Pét. Mm.** {
St. Pét. Mm. Ac. Sc. { See **St. Pét. Ac. Mm.**
- St. Pét. Mm. Sav. Étr.** ... Mémoires présentés à l'Académie Impériale des Sciences de St. Pétersbourg par divers Savans. St. Pétersbourg.

List of Serial Publications

- 1831—59. B.M.; Camb.U.; Edinb.R.S.; Glasg.U.; Linn.S.; N.H.M.; R.A.S.; R.S.; U.C.L.i.
- Strasb. Mm. S. Sc.**..... Mémoires de la Société des Sciences Naturelles de Strasbourg. Strasbourg.
- 1830—70. B.M.; Dub.R.I.A.i.; Dub.T.C.i.; N.H.M.
- Strasb. S. Sc. N. Mm.** ... Nouveaux Mémoires de la Société des Sciences, Agriculture, et Arts du Département du Bas-Rhin. Strasbourg.
- 1832—42; 1859—68. Camb.U.i.; N.H.M.; Oxon.B.; R.S.i.
- Svea** Svea. Tidskrift för Vetenskap och Konst. Upsala.
- 1818—31.
- Sym. Met. Mg.** Symons's Monthly Meteorological Magazine. London.
- 1866— Camb.U.; P.O.; R.S.
- Tasm. R. S. P.**..... Monthly Notices of Papers and Proceedings of the Royal Society of Tasmania. Hobart.
- 1863— B.M.i.; Camb.P.S.i.; Dub.R.D.S.; Edinb.R.S.i.; Linn.S.i.; N.H.M.; R.A.S.; R.S.
- Taylor Sc. Mm.** Scientific Memoirs, selected from the Transactions of Foreign Academies and Learned Societies and from Foreign Journals; Taylor. London.
- 1837—52. B.M.; Camb.U.; Chem.S.i.; Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.B.(R.); P.O.; R.A.S.i.; R.S.; U.C.L.
- Tel. E. J.** Journal of the Society of Telegraph Engineers. London.
- 1872— B.M.; Camb.P.S.; Camb.U.i.; Dub.T.C.i.; Oxon.B.; Oxon.R.; P.O.; R.S.; U.C.L.
- Terr. Mag.** Terrestrial Magnetism [and Atmospheric Electricity]. An International Quarterly Journal. Chicago, Cincinnati, Baltimore.
- 1896— Camb.U.i.; R.S.
- Texas Ac. Sc. T.** Transactions of the Texas Academy of Science. Austin.
- 1892— Camb.P.S.; Edinb.R.S.; Glasg.P.S.; Math.S.i.; N.H.M.; R.S.
- Thomson A. Ph.**..... Annals of Philosophy, or Magazine of Chemistry, Mineralogy, Mechanics, and the Arts; Thomson. London.
- 1813—26. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Edinb.R.S.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Thron. Skr.** Det Kongelige Norske Videnskabselskabs Skrifter i det 19de Aarhundrede. Kjøbenhavn og Thronhjelm.
- 1817— B.M.; Camb.U.i.; Dub.T.C.i.; Edinb.R.S.i.; N.H.M.; R.S.
- Tilloch Ph. Mg.** See *Norake Vd. Skr.*
- The Philosophical Magazine, comprehending the various branches of Science, the Liberal and Fine Arts, Geology, Agriculture, Manufactures, and Commerce. London.
- 1798—1826. B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Edinb.R.S.i.; Edinb.U.; Glasg.P.S.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.A.S.; R.S.; U.C.L.
- Tsk. Coll. Sc. J.** The Journal of the College of Science, Imperial University, Japan. Tôkio, Japan.
- 1887— B.M.; Camb.P.S.; Camb.U.; Chem.S.; Dub.T.C.; Edinb.R.S.; Edinb.U.i.; Glasg.P.S.i.; Linn.S.i.; Math.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.; R.S.; U.C.L.
- Tok. Un. Mm.**..... Memoirs of the Science Department, University of Tokio, Japan. Tokio, Japan.
- 1879—85. Camb.U.; Chem.S.i.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.i.; Glasg.P.S.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.; R.A.S.i.; R.S.; U.C.L.i.
- Tor. Ac. Mm.** Memorie della R. Accademia delle Scienze di Torino. Torino.
- 1818— B.M.i.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Edinb.R.S.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.; U.C.L.i.
- Tor. Ac. Sc. At.** Atti della R. Accademia delle Scienze di Torino. Torino.
- 1865— B.M.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; P.O.i.; R.A.S.; R.S.; U.C.L.i.
- Tor. Ac. Sc. Mm.** See *Tor. Ac. Sc. Mm., Tor. Mm. Ac., Turin Ac. Mm. and Turin Mm. Ac.*
- See *Tor. At. Ac. Sc.*
- See *Tor. Ac. Mm.*

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- Tor. At. Ac. Sc.** See **Tor. Ac. Sc. At.**
- Tor. Lav. Sc. Fis. Mt.** ... Notizia storica dei lavori fatti dalla Classe di Scienze Fisiche e Matematiche della R. Accademia delle Scienze negli anni 1864—65. Torino. 1869. Linn.S.; R.A.S.; R.S.
- Tor. Mm. Ac.** See **Tor. Ac. Mm.**
- Tortolini A.** Annali di Scienze, Matematiche, e Fisiche; Tortolini. Roma. 1850—57. B.M.; Camb.U.i.; Dub.R.D.S.; Dub.T.C.; Edinb.U.; Glasg.U.i.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.
- See **A. Mt.**
- Toul. Ac. Sc. Bil.** Bulletin de l'Académie des Sciences, Inscriptions et Belles-lettres de Toulouse. Toulouse. 1898—99. Dub.R.I.A.; Edinb.R.S.; N.H.M.; R.S.
- Toul. Ac. Sc. Mm.** Mémoires de l'Académie des Sciences, Inscriptions et Belles-Lettres de Toulouse. Toulouse. 1782— B.M.; Camb.U.; Dub.R.I.A.; Edinb.R.S.i.; N.H.M.; Oxon.B.i.; R.A.S.i.; R.S.
- See **Toul. Mm. Ac. and Toul. Mm. Ac. Sc.**
- Toul. Fac. Sc. A.** Annales de la Faculté des Sciences de Toulouse pour les Sciences Mathématiques et les Sciences Physiques. Paris. 1887— Camb.P.S.; Camb.U.; Edinb.R.S.; Math.S.; Oxon.R.; R.S.
- Toul. Mm. Ac.** } See **Toul. Ac. Sc. Mm.**
- Toul. Mm. Ac. Sc.** }
- Toul. Obs. A.** Annales de l'Observatoire Astronomique, Magnétique et Météorologique de Toulouse. Paris. 1880— B.M.; Edinb.R.S.; Math.S.i.; R.A.S.; R.S.
- Toul. S. H. Mt. Bil.** Bulletin de la Société d'Histoire Naturelle de Toulouse. Toulouse. 1867— N.H.M.
- Ts. Mth.** Tidsskrift for Mathematik. Kjøbenhavn. 1859—89. B.M.; Camb.U.; Math.S.i.; Oxon.B.
- Ts. Mt. Pys.** Tidsskrift för Matematik och Fysik, tillägnad den Svenska Elementar-Undervisningen. Upsala. 1868—74. B.M.; R.S.i.
- Turin Ac. Mm.** } Mémoires de l'Académie Royale des Sciences de Turin. Turin.
- Turin Mm. Ac.** } 1784—1816. B.M.; Dub.R.I.A.i.; Edinb.R.S.; Linn.S.; Oxon.B.; P.O.; R.A.S.; R.S.; U.C.L.
- See **Tor. Ac. Mm.**
- Un. Serv. I. J.** Journal of the Royal United Service Institution. London. 1858— B.M.; Camb.U.; Dub.N.L.I.i.; Edinb.U.; Oxon.B.i.; P.O.; R.S.
- Ups. Årak.** Upsala Universitetets Årsskrift. Upsala. 1861— B.M.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.; Linn.S.i.; Math.S.i.; N.H.M.; Oxon.B.; R.A.S.i.; R.S.
- Ups. N. Acta S. Sc.** } Nova Acta Regiæ Societatis Scientiarum Upsaliensis. Upsalim.
- Ups. S. Sc. N. Acta** } 1773— B.M.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.i.; Glasg.U.i.; Linn.S.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; R.A.S.i.; R.S.i.; U.C.L.i.
- Ups. Vet. S. Årak.** Årsskrift utgifven af Kongl. Vetenskaps-Societeten i Upsala. Upsala. 1860—61. B.M.; Camb.U.; Edinb.R.S.; N.H.M.; R.S.
- U. S. Coast Sv. Rp.** Reports of the Superintendent of the Coast Survey, showing the Progress of the Survey from year to year. Washington. 1851— Camb.U.; Dub.R.I.A.i.; Edinb.R.S.; N.H.M.; R.A.S.; R.S.; U.C.L.i.
- Utr. A. Ac.** Annales Academiæ Rheno-Trajectinæ. Trajectiad Rhenum. (Utrecht.) 1815—37. B.M.; Camb.U.; N.H.M.; Oxon.B.; R.S.i.
- Utr. Aant. Prv. Gn.** Aanteekeningen van het Verhandelde in de Sectie-Vergaderingen van het Provinciaal Utrechtsch Genootschap van Kunsten en Wetenschappen. Utrecht. 1846— Dub.R.D.S.; Edinb.R.S.; R.S.
- Vars. S. Mt. Tr. (C. R., Ps. C.)** Travaux de la Société des Naturalistes de Varsovie. Comptes Rendus de la Section de physique et de chimie. Varsovie. [In Russian.] 1889— Math.S.; N.H.M.
- Vars. S. Mt. Tr. (Mm.)** ... Travaux de la Société des Naturalistes de Varsovie. Mémoires. Varsovie. [In Russian.] 1891—96. Math.S.; N.H.M.

List of Serial Publications

- Ven. At.** Atti delle Adunanze dell' I. R. Istituto Veneto di Scienze, Lettere, ed Arti. Venezia.
1841— B.M.; Dub.R.D.S.i.; Dub.R.I.A.i.; Edinb.R.S.i.; Linn.S.i.; R.S.i.
- Ven. Aten.** L'Ateneo Veneto: Rivista mensile di Scienze, Lettere ed Arti. Venezia.
1881?— Dub.R.D.S.i.; R.S.i.
- Ven. Aten. At.** Atti dell' Ateneo Veneto. Venezia.
1864— Dub.R.D.S.; R.S.i.
- Ven. Aten. Esercit.** Esercitazioni Scientifiche e Letterarie dell' Ateneo di Venezia. Venezia.
1837—60. B.M.i.; Dub.T.C.i.; Oxon. B.i.; R.S.i.
See Ven. Esercit. Aten.
- Ven. At. I.** { Atti del Reale Istituto Veneto di Scienze, Lettere ed Arti. Venezia.
Ven. I. At. { 1841— B.M.; Edinb.R.S.i.; Linn.S.i.; Math.S.i.; N.H.M.; R.S.i.
Ven. Esercit. Aten. { *See Ven. Aten. Esercit.*
Ven. I. Mem. { Memorie del Reale Istituto Veneto di Scienze, Lettere, ed Arti.
Ven. Mem. I. { Venezia.
1843— B.M.; Camb.U.; Dub.R.I.A.i.; Linn.S.i.; N.H.M.; Oxon.B.i.; R.S.
- Verona Mem. S. It.** { Memorie di Matematica e di Fisica della Società Italiana delle Scienze. Modena e Verona.
Verona S. It. Mem. { 1782— B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.i.; Oxon.B.i.; R.A.S.i.; R.S.; U.C.L.i.
See Mod. Mem. S. It. and Rom. S. It. Mem.
- Vict. R. S. P.** Proceedings of the Royal Society of Victoria. Melbourne.
1889— B.M.; Camb.P.S.; Camb.U.; Dub.R.I.A.; Dub.T.C. Edinb.R.S.; Edinb.U.; Glasg.P.S.; N.H.M.; Oxon.B.; Oxon.R.P.O.; R.S.; U.C.L.i.
- Vict. R. S. T.** Transactions and Proceedings of the Royal Society of Victoria. Melbourne.
1861— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Glasg.P.S.i.; Glasg.U.i.; Linn.S.i.; N.H.M.; Oxon.B.; Oxon.R.i.; P.O.; R.A.S.; R.S.
See Vict. T. R. S.
- Vict. T. Ph. I.** Transactions of the Philosophical Institute (afterwards Royal Society) of Victoria. Melbourne.
1855—60. B.M.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.; Glasg.P.S.i.; Linn.S.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.
- Vict. T. R. S.** *See Vict. R. S. T.*
- V. Nost. Eng. Mg.** Van Nostrand's Engineering Magazine. New York.
1869—85. B.M.; P.O.; R.S.i.
- Voigt Mg.** Magazin für den neuesten Zustand der Naturkunden, mit Rücksicht auf die dazu gehörigen Hülfswissenschaften; Voigt. Jena und Weimar.
1797—1806. B.M.; Camb.U.; N.H.M.; R.S.
- Wash. Nat. Ac. Mem.** Memoirs of the National Academy of Sciences. Washington.
1866— B.M.i.; Camb.P.S.; Camb.U.i.; Dub.R.I.A.; Edinb.R.S.; Math.S.i.; N.H.M.; Oxon.B.i.; Oxon.R.; P.O.; R.S.; U.C.L.i.
- Wash. Ph. S. Bil.** Bulletin of the Philosophical Society of Washington. Washington.
1874— B.M.; Camb.P.S.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.B.; P.O.; R.A.S.; R.S.
- W. Eng. J.** The West of England Journal of Science and Literature. Bristol.
1835—36. B.M.; Camb.U.; Edinb.R.S.; N.H.M.; Oxon.B.; P.O.
- Westf. Vr. Jbr.** Jahres-Bericht des Westfälischen Provinzialvereins für Wissenschaft und Kunst. Münster.
1873— N.H.M.
- Wet. Ga. Jbr.** Jahresbericht der Wetterausichen Gesellschaft für die gesammte Naturkunde. Hanau.
1843— Dub.R.I.A.; R.S.i.
- Wlad. Mt.** Wiadomości Matematyczne. Warsaw.
1897— Camb.P.S.; Math.S.
- Wien Ak. D.** Denkschriften der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe. Wien.
1850— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Edinb.R.S.; Edinb.U.; Linn.S.; N.H.M.; Oxon.B.(R); P.O.i.; R.A.S.; R.S.; U.C.L.i.
See Wien D.

List of Serial Publications

- Wien Ak. Sb.** Sitzungsberichte der Mathematisch-Naturwissenschaftlichen Classe der Kaiserlichen Akademie der Wissenschaften. Wien.
1848— B.M.; Camb.P.S.i.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Dub.T.C.; Edinb.R.S.i.; Glasg.U.i.; Linn.S.; N.H.M.; Oxon.B.; Oxon.R.; P.O.i.; R.A.S.i.; R.S.; U.C.L.i.
See Wien SB. and Wien Sb.
- Wien Alm.** Almanach der Kaiserlichen Akademie der Wissenschaften. Wien.
1851— B.M.; Camb.P.S.i.; Camb.U.; Dub.R.I.A.i.; Edinb.R.S.i.; Oxon.B.; P.O.i.; R.A.S.i.; R.S.i.; U.C.L.i.
- Wien An.** Anzeiger der Kaiserlichen Akademie der Wissenschaften: Math.-Naturwiss. Classe. Wien.
1864— Camb.U.; Linn.S.; N.H.M.; Oxon.B.; R.S.i.
- Wien Berg-Hm. Jb.** Berg- und Hüttenmännisches Jahrbuch der k. k. Schemnitzer Bergakademie und der k. k. Montan-Lehranstalten zu Leoben und Příbram; Gustav Fallner. Wien.
1851— B.M.i.; P.O.i.
- Wien D.** *See Wien Ak. D.*
- Wien Jb. Pol. I.** Jahrbuch des k. k. Polytechnischen Instituts in Wien; Prechtl. Wien.
1819—39. B.M.; Camb.U.; Oxon.B.; P.O.
- Wien Jbr. Ober-Realsh. Inn. Stadt** Jahresbericht der öffentlichen Ober-Realsschule in der innern Stadt. Wien.
1859—63.
- Wien Met. Z.** Zeitschrift der Oesterreichischen Gesellschaft für Meteorologie. Wien.
1866—85. Dub.R.D.S.; Edinb.R.S.; P.O.; R.S.
- Wien Mt. Gg. Ga.** Mittheilungen der k. k. Geographischen Gesellschaft. Wien.
1857— B.M.; Dub.R.I.A.i.; Dub.T.C.i.; N.H.M.; Oxon.B.; R.S.
- Wien SB.** } *See Wien Ak. Sb.*
Wien Sb. }
- Wisc. Ac. T.** Transactions of the Wisconsin Academy of Sciences, Arts and Letters. Madison.
1872— B.M.; Camb.P.S.; Dub.R.I.A.; Edinb.R.S.; N.H.M.; Oxon.R.i.; P.O.i.; R.S.
- Würtb. Jh.** Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg. Stuttgart.
1845— B.M.; Camb.U.; Dub.R.D.S.i.; Dub.T.C.i.; Linn.S.i.; N.H.M.; R.S.
- Würzb. Fa. Md. Sb.** Sitzungsberichte der Physikalisch-Medicinischen Gesellschaft zu Würzburg. Würzburg.
1859—62. 1881— Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Linn.S.i.; Oxon.R.i.; R.S.
- Würzb. Fa. Md. Vh.** { Verhandlungen der Physikalisch-Medicinischen Gesellschaft. Würzburg.
Würzb. Vh. { 1850—60. 1868— B.M.i.; Camb.P.S.; Camb.U.; Chem.S.i.; Dub.R.I.A.; Linn.S.; N.H.M.; Oxon.R.; R.S.; U.C.L.i.
- Zach Cor.** Correspondance Astronomique, Géographique, Hydrographique, et Statistique; von Zach. Gènes.
1818—26. B.M.; R.A.S.; R.S.
- Zach M. Cor.** Monatliche Correspondenz zur Beförderung der Erd- und Himmelskunde; von Zach. Gotha.
1800—13. Oxon.B.; R.A.S.; R.S.; U.C.L.
- Z. Bauw.** Zeitschrift für Bauwesen; herausg. unter Mitwirkung der königl. technischen Bau-Deputation und des Architekten-Vereins zu Berlin. Berlin.
1851— B.M.; Camb.U.i.; P.O.
- Z. Instk.** Zeitschrift für Instrumentenkunde. Organ für Mittheilungen aus dem gesammten Gebiete der wissenschaftlichen Technik. Berlin.
1881— B.M.; Camb.U.; Chem.S.; Edinb.U.; Oxon.R.; P.O.; R.A.S.; R.S.
- Z. Math. Ph.** Zeitschrift für Mathematik und Physik; Schlömilch. Leipzig.
1856— B.M.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.; Dub.T.C.i.; Edinb.U.; Glasg.U.i.; Math.S.i.; Oxon.B.(R.); R.S.; U.C.L.i.
See Schlömilch Z.
- Z. Nw.** Zeitschrift für die gesammten Naturwissenschaften; herausgegeben von dem Naturwissenschaftlichen Vereine für Sachsen und Thüringen in Halle; Giebel. Berlin.

List of Serial Publications

- 1853— B.M.; Camb.U.i.; Dub.N.L.I.i.; Dub.R.D.S.i.; Dub.
R.I.A.i.; Dub.T.C.i.; Edinb.R.S.; Linn.S.; N.H.M.; Oxon.B.;
Oxon.R.; R.S.
See Halle Z. and Halle Z. Nw.
- Z. Psychol.** Zeitschrift für Psychologie und Physiologie der Sinnesorgane.
Hamburg, Leipzig.
- Zür. Mtschr.** 1890— B.M.; Camb.U.; Edinb.U.; Oxon.B.; Oxon.R.; R.S.; U.C.L.
Monatsschrift des Wissenschaftlichen Vereins in Zürich; Hitzig, etc.
Zürich.
- Zür. Mt.** 1856—59. B.M.; Camb.U.; N.H.M.; Oxon.B.; R.S.
Mittheilungen der Naturforschenden Gesellschaft in Zürich. Zürich.
1847—56. Chem.S.i.; Dub.R.I.A.; Edinb.R.S.i.; Linn.S.; N.H.M.;
R.A.S.; R.S.
- Zür. N. D. Sch. Ga.** Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft
für die gesammten Naturwissenschaften Neuchâtel. Zürich, etc.
- Zür. Vjschr.** 1837— B.M.; Camb.P.S.; Camb.U.; Dub.R.D.S.i.; Dub.R.I.A.i.;
Edinb.R.S.; Linn.S.i.; N.H.M.; Oxon.B.; R.S.
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Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich.
Zürich.
- Zwick. Vr. Mt. Jbr.** 1856— B.M.; Camb.P.S.; Camb.U.i.; Chem.S.i.; Dub.R.I.A.;
Edinb.R.S.; Linn.S.i.; Math.S.i.; N.H.M.; R.A.S.; R.S.
Jahresbericht des Vereins für Naturkunde zu Zwickau. Zwickau.
1874— N.H.M.; R.S.i.

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Addresses, Lectures, etc. 0040

- Syzygies, irreducible, of quantics. *Sylvester, J. J.* *Am. J. Mth.* 4 (1881) 41-.
- Trigonometric functions of cyclic and hyperbolic sectors. *Gronau, J. F. M.* [1863-65] *Danzig Schr.* 1 (1866) (Heft 1) viii + 151 pp.; (Heft 2) 4 pp.
- , history question. *Prony, R. de.* *Par. Mm. de l'I.* 5 (1802) (H.) 67-.
- , new system. *Bouché, A.* *M.-et-L. Mm. S. Ac.* 8 (1860) 145-.
- , note. *Hill, C. J. D.* *Lund Phys. Sällsk. Ts.* 1 (1838) 283-; *Grunert Arch.* 1 (1841) 191-.
- Trigonometry and astronomy, fundamental tables. *Sang, E.* *Edinb. R. S. P.* 16 (1890) 249-.
- Two old tables. *Pendlebury, R.* *Mess. Mth.* 4 (1875) 8-.
- Values of $\Delta^m O^m$. *Herschel, J.* [attributed to *Lacroix in (m)*]. *N. A. Mth.* 13 (1854) 272-.
- $S_k = \sum_{n=1}^k n^k$. *Stieltjes, T. J.* *Acta Mth.* 10 (1887) 299-.
- 1. 2. 4... (x-1)/2. 3. 5... x, denominators being primes. *Glaisher, J. W. L.* *Mess. Mth.* 28 (1899) 1-.
- Zonal harmonics. *Perry, J.* [1890] *L. Ps. S. P.* 11 (1892) 221-; *Ph. Mg.* 32 (1891) 512-.

0040 Addresses, Lectures, etc., of a general character.

- American Mathematical Society, past and future. *McClintock, E.* [1894] *N. Y. Am. Mth. S. Bll.* 1 (1895) 85-.
- Astronomy, geometry, and arithmetic, three discourses. *Garnier, J. G.* (vi *Adds.*) *Gand A. Ac.* (1817-18) 83 pp.
- Chicago, inaugural address, Aug. 21, 1893. *Klein, F.* *N. Y. Mth. S. Bll.* 8 (1894) 1-.
- Collaboration in mathematics. *Greenhill, A. G.* [1892] *L. Mth. S. P.* 24 (1893) 5-.
- Combinatory analysis: a review. *MacMahon, P. A.* [1896] *L. Mth. S. P.* 28 (1897) 5-.
- Confluences and bifurcations of certain theories. (Presidential address, 1888.) *Cockle, (Sir) J.* *L. Mth. S. P.* 20 (1889) 4-.
- "Deutsche Naturforscher," address at meeting, 1858. *Eisenlohr, W.* *Grunert Arch.* 32 (1859) 140-.
- Differential equations and applied mathematics, historical sketch. *Naetsch, E.* *Civing.* 41 (1895) 655-.
- General considerations. *Glaisher, J. W. L.* *B. A. Rp.* (1890) 719-.
- Geometrical method. (Presidential address.) *Larmor, J.* *Mth. Gz.* 1 (1900) 1-.
- researches, comparative reflections on recent. *Klein, F.* *A. Mt.* 17 (1889-90) 307-.
- Geometry applied to practical life. *Pearson, K.* *Nt.* 43 (1891) 273-.
- Grassmann's "Ausdehnungslehre" applied to mechanics. *Schlegel, V.* *Civing.* 40 (1894) 59-.
- Historiography of mathematics. *Cantor, —.* [1900] *N. Y. Am. Mth. S. Bll.* 7 (1901) 57-.

0040 Addresses, Lectures, etc.

- History of mathematics and physics. (Anniversary address.) *Knibbs, G. H.* N. S. W. R. S. J. 33 (1899) 1-.
- Influence of applied, on the progress of pure, mathematics. (Presidential address.) *Walker, J. J.* [1890] L. Mth. S. P. 22 (1891) 4-.
- Invariants of motion, and elementary geometry. *Study, E.* Leip. Mth. Ps. B. 48 (1899) 649-.
- Lectures at École Normale. *La Place, P. S. (le marquis) de.* Par. Sé. Éc. Norm. 1 (1800) 16-, 268-, 381-; (pte. 2) 8-, 130-; 2 (1800) 116-, 302-; 3 (1800) 24-; 4 (1800) 32-, 223-; 5 (1800) 201-; 6 (1800) 32-.
- — — — *Lagrange, J. L. de.* Par. Sé. Éc. Norm. 1 (1800) (pte. 2) 3-, 34-; 3 (1800) 227-, 276-, 463-; 4 (1800) 401-; 10 (1801) 5-.
- — — — (elementary), 1795. *Lagrange, J. L. de.* Par. Éc. Pol. J. 2 (1812) (7^e et 8^e cah.) 173-.
- Mathematical problems. *Hilbert, D.* Gött. Nr. (1900) 253-.
- theories, etc. (Presidential address, 1883.) *Cayley, A. B. A. Rp.* (1883) 3-.
- tripos, the. (Presidential address.) *Glaisher, J. W. L.* L. Mth. S. P. 18 (1886-87) 4-.
- Mathematics. *Kempe, A. B.* [1894] L. Mth. S. P. 26 (1895) 5-.
- , influence on physical science. *Bastarrica, J.* Chile A. Un. (1852) 41-.
- and natural science, mutual relations. *Wild, J.* St Gal. B. (1885-86) 101-.
- Phys. Sect. Address, 1865. *Spottiswoode, W. B. A. Rp.* 35 (1865) (Sect.) 1-.
- — — —, 1869. *Sylvester, J. J. B. A. Rp.* 39 (1869) (Sect.) 1-.
- — — —, 1870. *Maxwell, J. C. B. A. Rp.* 40 (1870) (Sect.) 1-.
- — — —, 1871. *Tait, P. G. B. A. Rp.* 41 (1871) (Sect.) 1-.
- — — —, 1873. *Smith, H. J. S. B. A. Rp.* 43 (1873) (Sect.) 1-.
- — — —, Presidential address, 1883. *Henrici, O. M. F. E. B. A. Rp.* (1883) 393-.
- — — —, 1897. Pure mathematics. *Forsyth, A. R. B. A. Rp.* (1897) 541-.
- Mission of science, address. *Thurston, R. H.* Am. As. P. (1884) 227-.
- Modern function theory, development. *Krause, —.* Civing. 34 (1888) 639-.
- Moscow Math. Soc., Jubilee, address. *Bugaev, N. V.* [1894] Rec. Mth. (Moscou) 18 (1896) vi-.
- — — — Presidential address, March 21st, 1900. *Bugaev, N. V.* Rec. Mth. (Moscou) 21 (1901) 537-.
- Purposes of Brit. Assn., and external aspects of mathematics. (Presidential address, 1878.) *Spottiswoode, W. B. A. Rp.* (1878) 1-.
- Riemann's surfaces. Hypergeometric function. Differential equations. Theory of numbers. (Lectures.) *Klein, F.* [1891-96] Mth. A. 45 (1894) 140-; 46 (1895) 77-; 48 (1897) 562-.
- Secondary needs and opportunities of English mathematicians. (Presidential address.) *Elliott, E. B.* [1898] L. Mth. S. P. 30 (1899) 5-.

Pedagogy 0050

Universities and technical schools, address. *Klein, E. D.* Mth. Vr. Jbr. 7 (1889) (Heft 1) 39-.

0050 Pedagogy.

- Actuarial competence, requisites. *Sutton, W. I.* Act. J. 16 (*1872) 434-.
- Actuaries, importance of mathematical studies. *Sprague, T. B.* I. Act. J. 18 (*1875) 403-.
- , mathematical education. *Kiepert, L. D.* Nf. Vh. (1894) (Th. 2, Hälfte 1) 16-.
- , — — *Fehr, H.* Ens. Mth. 1 (1899) 447-.
- Actuary, education. *Porter, H. W.* Assur. Mg. 4 (*1854) 108-.
- Algebra, the first chapter. *Anon.* Educ. Times 39 (1886) 326-.
- in schools. *Heppel, G.* Mth. Gz. No. 4 (1895) 25-.
- , teaching, in 1876. (Henrion's "Euclid.") *Mansion, —.* Brux. S. Sc. A. 19 (1895) (Pt. 1) 101-.
- American colleges, mathematics. *Eddy, H. T.* Am. As. P. (1884) 37-.
- Analytical geometry, combination of planimetry and stereometry in teaching. *Ripert, L.* As. Fr. C. R. (1900) (Pt. 2) 1036-.
- Application of mathematical and mechanical principles to technical problems. *Heun, K. D.* Mth. Vr. Jbr. 5 (1901) (Heft 1) 91-.
- Arithmetic and algebra, elementary teaching. *Recknagel, G. D.* Nf. Vh. (1899) (Th. 2, Hälfte 1) 279-.
- , the first stage. *Quick, (Rev.) R. H.* Educ. Times 41 (1888) 227-.
- , the five fundamental operations. *Kupffer, K.* Dorpat Sb. 10 (1895) 359-.
- , teaching. *Edinb. Mth. S. Comm.* Edinb. Mth. S. P. 6 (1888) 89-.
- , —, method. *Elowson, G.* Ts. Mt. Fys. 2 (1869) 40-.
- , —, — *Moesta, C. W.* Chile A. Un. (1852) 322-.
- Arithmetical problems in secondary schools, treatment. *Burali-Forti, C.* Rv. Mt. 1 (1891) 31-.
- Blind, teaching of the congenitally. *Penjon, —.* Gergonne A. Mth. 3 (1812-13) 308-.
- Combination of solid with plane geometry in teaching. *Candido, G.* Ens. Mth. 1 (1899) 204-.
- Descriptive geometry, first lesson. *Budelot, G.* Ens. Mth. 1 (1899) 286-.
- , —, lacuna in the teaching. *Tilly, (Maj.) de.* Brux. S. Sc. A. 9 (1885) (Pt. 2) 95-.
- Educational testimony concerning the calculus. *Meech, L. W.* Des Moines Anal. 1 (1874) 133-.
- Elliptic functions, teaching of theory. *Mansion, —.* Brux. S. Sc. A. 24 (1900) (Pt. 1) 54-.
- Equations, choice of examples in teaching. *Breton [de Champ], P.* N. A. Mth. 2 (1843) 539-.
- Errors in mathematical text books. *Beyer, —.* Grunert Arch. 3 (1843) 113-.
- Euclid and teaching of geometry. *Magnus, P.* Educ. Times 33 (*1880) 81-.

- Examination questions, composition. *Laisant*, C. A. Ens. Mth. 1 (1899) 120-.
- , solutions. *Sprague*, T. B. Assur. Mg. 10 (*1863) 45-; 13 (*1867) 253-; I. Act. J. 14 (*1869) 147-.
- , — (a correction). *Adler*, M. N. I. Act. J. 14 (*1869) 242.
- Examinations, judging in mathematical. *Bordoni*, A. [1841] Mil. Mm. I. Lomb. 1 (1843) 189-.
- , problems suitable. *Wittstein*, T. Grunert Arch. 7 (1846) 27-.
- Exposition of pure mathematics. *Delarue*, D. M. (xii) [1869] Rec. Mth. (Moscou) 4 (1869-70) (Pt. 2) 81-.
- Formulas, special application of mnemonics. *Hoffmann*, L. Förster Al. Banztg. 10 (1845) 362-.
- Geometrical drawing, teaching. *Henrici*, O. B. A. Bp. (1895) 608.
- teaching, reform. *Fiedler*, W. Zür. Vjschr. 22 (1877) 82-.
- , —. *Wittek*, H. D. Nf. Vh. (1894) (Th. 2, Hälfte 1) 317-.
- Geometry and analysis, higher, Naples University, 1870-71. *Bernardinis*, G. de, & *Fuortes*, T. G. Mt. 9 (1871) 233-.
- , elementary, new trend in. *Ciamberlini*, C. Rv. Sc.-Ind. 80 (1898) 99-, 113-, 153-.
- , —, teaching. *Devey*, —. Bb. Un. 8 (1818) 257-.
- , —. *Barclay*, A. J. G. Edinb. Mth. S. P. 2 (1884) 24-.
- , —. *Dickmann*, —. D. Nf. Tbl. (1888) 342-.
- , experiment in teaching. *Fraser*, A. Y. Edinb. Mth. S. P. 5 (1887) 94-.
- , first teaching. *Laisant*, C. A. Ens. Mth. 1 (1899) 339-.
- , higher, teaching. *Charles*, M. Liouv. J. Mth. 12 (1847) 1-.
- , natural. *Mault*, A. Tasm. R. S. P. (1886) 103-.
- , practical, development. (Graphics.) *Anon*. Elect. 28 (1892) 298-.
- , —. —. —. *Thompson*, S. P. Elect. 28 (1892) 332-.
- , — solid, teaching in higher schools. *Hildebrandt*, C. D. Nf. Vh. (1897) (Th. 2, Hälfte 1) 34-.
- , —, — at Strassburg. *Krazer*, A. D. Mth. Vr. Jbr. 8 (1900) (Heft 1) 119-.
- in schools. *Heppel*, G. Educ. Times 50 (1897) 181-.
- , teaching. *Dallas*, R. J. Nt. 59 (1898-99) 416.
- , —. *Reinhardt*, N. V. Kazan S. Ps.-Mth. Bll. 8 (1899) (Prot.) 19-.
- versus Euclid. *Minchin*, G. M. Nt. 59 (1898-99) 369-.
- Graduated system of teaching, especially in geometry. *Bazala*, J. D. Nf. Vh. (1894) (Th. 2, Hälfte 1) 313-.
- Higher mathematics at Italian Universities, teaching. *Pascal*, E. Rv. Mt. 3 (1893) 170-.
- Hyperbolic functions in teaching. *Barbaris*, P. Ens. Mth. 2 (1900) 443-.
- Imaginaries, treatment in higher school teaching. *Pietzker*, F. [1898] D. Mth. Vr. Jbr. 7 (1899) (Heft 1) 154-.
- Indices and surds, teaching. *Genese*, R. W. Mth. Gz. 1 (1900) 339-.
- Infinitesimal calculus, course. *Obrecht*, A. Santiago de Chile Un. A. 87 (1894) 533-, 657-, 715-; 88 (1894) 39-; 90 (1895) 45-; 91 (1895) 677-; 93 (1896) 105-, 241-; 103 (1899) 699-, 887-; 104 (1899) 39-, 201-, 359-, 747-, 1061-; 106 (1900) 79-, 375-, 545-, 949-, 1097-.
- Infinity in elementary mathematics. *Lamarle*, E. [1851] Brux. Ac. Sc. Mm. 27 (1853) 31 pp.
- Inverted problems (an old arithmetic book). C., H. A. Educ. Times 48 (1895) 29-.
- Languages and mathematics in state schools of modern Germany. *Baumann*, H. Educ. Times 37 (1884) 98-.
- Leibnitz, calculus of, and its teaching. *Arnoux*, R. As. Fr. C. R. (1900) (Pt. 2) 1089-.
- Mathematical history, 8 years of teaching. *Favaro*, A. Bb. Mth. (1887) 49-.
- , lectures in Moscow University, programme of course. *Bobylin*, V. V. Fsch. Mth. (1890) 87; Bb. Mth. (1891) 79-.
- , — at Munich. *Steinschneider*, M. Bb. Mth. (1897) 113-.
- , —, university course. *Eneström*, G. Bb. Mth. (1890) 1-.
- instruction in France. *Pierpont*, J. N. Y. Am. Mth. S. Bll. 6 (1900) 225-.
- problems, and the development of mathematics. *Hilbert*, D. Ens. Mth. 2 (1900) 349-.
- teaching. *Hudson*, W. H. H. Educ. Times 46 (1893) 135-.
- , —. *Biraben*, F. Arg. S. Ci. A. 48 (1899) 106-, 156-.
- , —. *Duclaux*, E. Rv. Sc. 11 (1899) 353-.
- , —. *Garcia de Galdeano*, Z. As. Fr. C. R. (1900) (Pt. 2) 1052-.
- , —. *Perry*, J. Nt. 62 (1900) 317-.
- , —. *Heaviside*, O. Nt. 62 (1900) 548-.
- , —, changes. *Piola*, G. (viii) [1840] Bb. It. 2 (1841) 159-.
- , —, curiosities in early English. *Heppel*, G. Educ. Times 38 (1895) 145-.
- , —, elementary. *Laisant*, —. Rv. Sc. 11 (1899) 358-.
- , —, general principles. *Galdeano*, Z. G. de. Ens. Mth. 1 (1899) 195-.
- , — at German Universities, especially Göttingen. *Fano*, G. Rv. Mt. 4 (1894) 170-.
- , — in Germany, history. *Günther*, S. Ens. Mth. 2 (1900) 237-.
- , — in higher grade schools (gymnasiums and lyceums). *Catania*, S. Rv. Mt. 5 (1895) 83-.
- , — Holland. *Cardinaal*, J. Ens. Mth. 2 (1900) 317-.
- , —, methods. *Grunert*, J. A. Arch. Mth. Ps. 42 (1864) 848-.
- , — in preparation for the "École Polytechnique." *Laurent*, H. Ens. Mth. 1 (1899) 38-.

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- Mathematical teaching, reform. *Mair, D.* Nt. 62 (1900) 389.
- , —. *Woollen, H.* Nt. 62 (1900) 436.
- , —. *Beard, W. F.* Nt. 62 (1900) 466.
- , —. *Stromeyer, C. E.* Nt. 62 (1900) 523.
- in Russia. *Bobylin, V. V.* Ens. Mth. 1 (1899) 420-.
- , —, history. *Bobylin, V. V.* Ens. Mth. 1 (1899) 77-.
- , — schools. *Lie, S.* Christiania F. (1884) No. 16, 8 pp.; (1885) No. 11, 10 pp.
- , —. *Tafelmacher, A.* Santiago de Chile Un. A. 85 (1893) 35-.
- , —, simplification of elementary. *Heppel, G.* Educ. Times 44 (1891) 463-.
- in United States. *Safford, T. H.* N. Y. Mth. S. Bll. 3 (1894) 4-.
- , — universities in 1894. *Galdeano, Z. G. de.* Fsch. Mth. (1893-94) 118.
- , —, problems and methods. *Klein, F. D.* Mth. Vr. Jbr. 7 (1899) (Heft 1) 126-.
- , —, use of history. *Heppel, G.* Nt. 48 (1893) 16-.
- , —, practical applications. *Bettazzi, R.* Ens. Mth. 2 (1900) 14-.
- Mathematics for astronomy and navigation. *Wilson, T.* Mth. Gz. No. 4 (1895) 27-.
- at certain German Universities. *Dillner, G.* Ups. Årsk. (1876) 37 pp.
- , elementary, economy of thought. *Meyer, W. F. D.* Mth. Vr. Jbr. 7 (1899) (Heft 1) 147-.
- in girls' schools. *Bryant, (Mrs.)* —. Educ. Times 31 (*1878) 145-.
- , how to study. *Degen, C. F.* Kiob. Dn. Vd. Selsk. Skr. 2 (1801-2) 75-.
- , relations between university and high school in domain of. *Schotten, H. D. Nf.* Vh. (1898) (Th. 2, Hälfte 1) 20-.
- in Russia, history of study. *Bobylin, V. Bb.* Mth. (1888) 103-.
- , — schools. *Heppel, G.* Educ. Times 39 (1886) 385-.
- as a scientific and pedagogic aid. *Bugaev, N. V.* (xn) [1869] Rec. Mth. (Moscou) 3 (1868) (Pt. 2) 183-.
- in Spain. *Galdeano, Z. G. de.* Ens. Mth. 1 (1899) 6-.
- , — in 1893-94. *Galdeano, Z. G. de.* Fsch. Mth. (1893-94) 117.
- , — teaching of physics, importance. *Calzecchi, T.* Rv. Sc.-Ind. 30 (1898) 65-.
- Mensuration, note. *Lefevre, A.* Texas Ac. Sc. T. 2 (No. 2) (1899) 39-.
- Multiplication, method of performing. *Berdellé, C.* As. Fr. C. R. (1884) (Pt. 2) 584-.
- Notion of the infinite in teaching elementary geometry. *Ripert, L.* Ens. Mth. 2 (1900) 127-.
- , —, —, —, —. (Correction of error in Ripert's paper, p. 129.) *Niewenglowski, B.* Ens. Mth. 2 (1900) 219.
- , — a limit in teaching. *Clasen, —.* Braunsch. Vr. Nt. Jbr. (11) (1899) 159-.
- on number and limit in teaching. *Pringsheim, A. D.* Mth. Vr. Jbr. 6 (1899) (Heft 1) 73-.

Institutions 0060

- Problem solving as a discipline. *Hall, A.* Wash. Ph. S. Bll. 11 (1892) 598-.
- Pure mathematics for engineering students. *Hathaway, A. S.* [1900] N. Y. Am. Mth. S. Bll. 7 (1901) 266-.
- Quadratic equation, theory. *Macfarlane, A.* Ens. Mth. 2 (1900) 363-.
- equations, solution. *Mathews, G. B.* Nt. 57 (1897-98) 463-.
- Reducing results of measurement. *Rudel, K.* D. Nf. Vh. (1893) (Th. 2, Hälfte 1) 217-.
- Role of mathematics in general education. *Budelot, G.* Ens. Mth. 1 (1899) 222.
- Rules of multiplication, their nature and teaching. *Baron, R.* Ens. Mth. 1 (1899) 317-.
- Scientific method in teaching. *Binet, A.* Ens. Mth. 1 (1899) 29-.
- Smith's-Prize papers. *Cayley, A.* Mess. Mth. 3 (1874) 165-; 4 (1875) 6-; 6 (1877) 173-.
- Statutes for testing teachers, and Mathematical course. *Hauck, G.* D. Nf. Vh. (1899) (Th. 2, Hälfte 1) 17-.
- , —, —. (Prussian.) *Weber, H.* D. Nf. Vh. (1899) (Th. 2, Hälfte 1) 9-.
- , —, —. (—) *Schotten, H.* D. Nf. Vh. (1899) (Th. 2, Hälfte 1) 26-.
- Statutory tests for teachers in Bavaria. *Rudel, K.* D. Nf. Vh. (1899) (Th. 2, Hälfte 1) 29-.
- Synthetic and projective geometry, need of, in analytical geometry. *Davidescu, D. A.* Bucarest S. Sc. Bll. (1900) 19-.
- Systematisation of mathematics. *Ellis, A. J.* R. S. P. 10 (1859-60) 85-.
- Technical High Schools in America. *Engels, H.* Civing. 40 (1894) 13-.
- instruction, especially its geometry. *Paganini, C.* Mil. G. I. Lomb. 1 (1841) 291-.
- teaching in Chili. *Nogués, A. F.* [1893-94] Santiago de Chile Un. A. 85 (1893) 277-, 345-, 515-.
- Training of teachers of science in higher schools, in view of modern requirements. *Schwalbe, B. D.* Nf. Vh. (1896) (Th. 2, Hälfte 1) 15-.
- Trigonometry, teaching. *Aragón, A.* Méx. S. "Alzate" Mm. 5 (1891) 69-.
- , — of elements. *Fehr, H.* Ens. Mth. 1 (1899) 45-.
- 'Unitary' method in teaching proportion. *Beta.* Educ. Times 32 (*1879) 259-.
- Universities and technical schools, address. *Klein, F. D.* Mth. Vr. Jbr. 7 (1899) (Heft 1) 39-.
- University lectures on infinitesimal calculus. *Pringsheim, A. D.* Mth. Vr. Jbr. 7 (1899) (Heft 1) 138-.
- Vector theory, teaching. *Fontené, G.* Ens. Mth. 1 (1899) 50-.

0060 Institutions.

- Franklin Institute during 75 years. *Thurston, R. H.* Franklin I. J. 149 (1900) 81-.

0070 Nomenclature.

- "Al-djebr," exact meaning of word. *Vauz*, C. de. Bb. Mth. (1897) 1-.
- Algorithm, meaning of term. *Hunrath*, K. Bb. Mth. (1887) 70.
- Antiparallels. *Langley*, E. M. Nt. 40 (1889) 460-.
- "Autotomic" curves. *Basset*, A. B. Nt. 62 (1900) 572.
- — — *Orchard*, H. L. [1900] Nt. 63 (1900-01) 7.
- — — *Thorn*, A. S. [1900] Nt. 63 (1900-01) 7.
- — — *Basset*, A. B. [1900] Nt. 63 (1900-01) 82.
- Chinese arithmetical notation. *Edkins*, —. Nt. 37 (1888) 65.
- "Conjugate angles," new geometrical term. *Worthington*, A. M. Nt. 47 (1892-93) 8.
- Cuneiform numerical signs, transmission. *Bobylin*, V. Bb. Mth. (1898) 18-.
- Curves without double points. *Richmond*, H. [1900] Nt. 63 (1900-01) 58.
- Decimal division of circle (i.e. of right angle). *Hatzfeld*, A. Rv. Sc. 48 (1891) 655-.
- Determinant notation. *Nanson*, E. J. Ph. Mg. 44 (1897) 396-.
- Differential notation and teaching. *Poincaré*, H. Ens. Mth. 1 (1899) 106-.
- Duodecimal system. *Heaviside*, O. Elect. 87 (1896) 489.
- Functions, growth of notation for. *Eneström*, G. Bb. Mth. (1891) 89-.
- General and logico-mathematical notation. *Oliver*, J. E. A. Mth. 4 (1888) 186-.
- Geometrical square, nomenclature. *Weissenborn*, H. Bb. Mth. (1888) 37.
- Geometrography or systematic notation for geometric constructions. *Lemoine*, E. G. Teix. J. Sc. 12 (1895) 114-.
- Gnomon theorem (Euc. I. 48). *Allman*, G. J. Bb. Mth. (1887) 22.
- Kardaga. *Steinschneider*, M. Bb. Mth. (1891) 114.
- Language, mathematical and scientific. *Anon.* (vi 543). *Gergonne* A. Mth. 12 (1821-22) 822-.
- Logarithms, notation. *Draenert*, —. D. Nt. Tbl. (*1876) (Suppl.) 173-.
- Nomenclature. *Dantas Pereira*, J. M. Lisb. Mm. Ac. Sc. 10 (1830) (pte. 2) 197-.
- — — geometrical. *Fontené*, G. Ens. Mth. 2 (1900) 134-.
- — — of metric system. *Rautenfeld-Lindenruh*, H. von. Riga Cor.-Bl. 38 (1895) 85.
- Notation. *Lubbock*, J. W. [1829] As. S. Mm. 4 (1831) 471-.
- — — *Sylvester*, J. J. Ph. Mg. 7 (1854) 50-.
- — — *Houzeau*, J. C. Brux. Ac. Bil. 89 (1875) 487-.
- — — algebraic. *Jarrett*, T. [1827] Camb. Ph. S. T. 3 (1830) 65-.
- — — *Collins*, J. V. Science 20 (1892) 359.

- Notation, arithmetical. *McColl*, H. Educ. Times 33 (*1880) 111.
- — — calculus. *Couto*, M. V. do, & *Simões Margiuchi*, F. Lisb. Mm. Ac. Sc. 8 (pte. 2) (1814) 48-.
- — — of decimal fractions. *Gravelaar*, N. L. W. A. N. Arch. Wisk. 4 (1899) 54-; *Fachr. Mth.* (1899) 37.
- — — numerical. *Prevost*, P. Bb. Un. 3 (1816) 306-.
- — — questions concerning. *Ripert*, L. Ens. Mth. 1 (1899) 139.
- — — useful in analysis. *Ocagne*, M. d'. Par. S. Mth. Bil. 15 (1887) 156-.
- π to denote 3.14159..., first use. *Eneström*, G. Bb. Mth. (1889) 28.
- — — — — *Ball*, W. W. R. Bb. Mth. (1894) 106.
- Printing mathematical symbols. *Mitchell*, C. T., and others. Elect. 29 (1892) 652, et seq.
- — — *Thompson*, S. P. Nt. 46 (1892) 513.
- — — mathematics. *Cassie*, W. [1892] Nt. 47 (1892-93) 8-.
- — — *Jackson*, M. J. Nt. 47 (1892-93) 227.
- Quantitative comparisons, a common error in speech. *Johnson*, G. H. Science 22 (1893) 852.
- Roulettes. *Willson*, F. N. Am. As. P. (1887) 59-.
- Signs (for functions, operations, &c.). *Hoppe*, R. Arch. Mth. Ps. 61 (1877) 323-.
- Spoken numeration, from international point of view. *Berdellé*, C. Ens. Mth. 1 (1899) 289-.
- Symbols. *Hall*, A. [1889] A. Mth. 5 (1889-90) 19.
- — — of non-existence. *Doolittle*, M. H. Wash. Ph. S. Bil. 11 (1892) 603.
- Terminology. *Laisant*, C. A. Ens. Mth. 1 (1899) 22-.
- — — and conceptions. *Györy*, S. (xii) Mag. Tud. Ak. Éts. 3 (No. 12) (1869) 131-.
- — — mathematical. *Roberts*, S. [1882] L. Mth. S. P. 14 (1882-83) 5-.
- — — suggestions. *Muirhead*, R. F. Edinb. Mth. S. P. 13 (1895) 143.
- Trigonometry, development of notation. *Braunmühl*, A. von. Bb. Mth. 1 (1900) 64-.
- Umbral notation. *Harley*, (Rev.) R. B. A. Rp. (1887) 600-.
- Uniform notation for mathematical and physical quantities. *Winkler*, E., & *Keck*, —. Civing. 30 (1884) 285-.
- — — — — *Keck*, —. Hann. Archt.-Vr. Z. 30 (1884) 285-.
- Use of + and - to denote "plus" and "minus." *Eneström*, G. Stockh. Öfv. (1894) 243-; *Fachr. Mth.* (1893-94) 59-; Bb. Mth. (1899) 105-.
- — — terms "square" and "cube" in Algebra. *Taylor*, W. B. Wash. Ph. S. Bil. 11 (1892) 590-.
- Variation, variable, &c., remarks on the words. *Strauch*, G. W. Grunert Arch. 7 (1846) 221-.

0080 Instruments, including
Calculating Machines. Models.

INSTRUMENTS.

- Algebraical machines. *Torres, L.* As. Fr. C. R. (1895) (Pt. 2) 90-.
- Angle, correction for tilt of horizontal circle. *Matzka, W.* Grunert Arch. 13 (1849) 113-.
- , instrument for dividing into equal parts. *Gouin, E.* Les Mondes 12 (1866) 470-.
- measurer. *Heineken, N. J.* Intell. Obs. 8 (1886) 197-.
- — for schools. *Fischer, F. W.* [1876] Arch. Mth. Ps. 61 (1877) 99-.
- , mechanical division. *Perrin, R.* [1875] Par. S. Mth. Bll. 4 (1876) 85-.
- , — — *Brocard, H.* [1876] Par. S. Mth. Bll. 5 (1877) 43-.
- Antigraph, a reversing drawing instrument. *Marcus, S.* Wien SB. 17 (1855) 282-.
- Arcs, instrument for drawing. *Alderson, Jas.* Gill Tech. Rep. 10 (1829) 128-.
- Area, moment of inertia, and centre of gravity of a plane area, apparatus for giving. *Collignon, É.* (ix) A. Pon. Chauss. 3 (1872) 223-.
- Arithmoplanimeter. *Lalanne, L.* Par. A. Pon. Chauss. 20 (1840) 3-.
- Axonomic drawing, protractors for, preparation. *Anon.* (vi 316) Civing. 7 (1861) 83-.
- Besson, Jacques, (+1589), (Mathematical instruments). *Beck, T.* Civing. 36 (1890) 191-.
- Calculating machine. Cung's "machine à débits," for calculating quantity of water flowing through an orifice. *Sornin, J.* Toul. Mm. Ac. 6 (1856) 346-.
- Calculimeter (sort of slide rule). *Fenton, J. J.* Vict. R. S. P. 2 (1890) 84-.
- Chinese abacus or souan-pan. *Rodet, L.* Par. S. Mth. Bll. 8 (1880) 158-.
- Circles, instrument for dividing on paper. *Balfour, J. M.* (vi Adds.) [1859] Edinb. T. Sc. S. Arts 5 (1861) 149-.
- with remote centres, construction. *Fischer, E.* Dingler 294 (1894) 133-.
- Circular arcs, instrument for use of mechanicians for comparison of. *Sipos, P.* (vi Adds.). Berl. Sm. D. Ab. 2 (1796) 201-.
- Compass, bicentric. *Maze (l'abbé) C.* Les Mondes 8 (1884) 703-.
- for drawing spirals. *Hartung, A.* Dingler 266 (1887) 12-.
- , elliptic, new. *Jost, K.* Wien Ak. Sb. 95 (1887) (Ab. 2) 251-.
- , hyperbolic. *Reichelt, K. F.* Cztg. Opt. 17 (1896) 208.
- Compasses, copying —, a simple form of pantograph. *Sedlaczek, J.* Wien SB. 16 (1855) 180-.
- , elliptic. *Burchard, L.* Carl Rpm. 13 (1877) 528-.
- , improvement. *Möllinger, O.* Sch. Gs. Vh. (1850) 52-.
- , proportional. *Narrien, J.* Thomson A. Ph. 8 (1816) 338-.

- Compasses, proportional. *Butkevich, F. S.* (xii) [1873] Mosc. S. Sc. Bll. 39 (No. 2) (1880) 128-.
- , —. *Palacios, D.* Méx. S. "Alzate" Mm. 7 (1893) 193-.
- , trisecting, Laisant. *Brocard, H.* Par. S. Mth. Bll. 3 (1875) 47-.
- Conic section compass. *Meyn, R.* Civing. 8 (1862) 247-.
- — compasses. *Frizell, J. P.* Camb. (M.) Mth. M. 1 (1859) 262-.
- — —, Drzewiecki's for direct construction of conics with mathematical pen. *Kuhn, M.* Carl Rpm. 10 (1874) 420-.
- sections, instrument for drawing. *Rebiček, G.* Carl Rpm. 11 (1875) 64-.
- Curve description; kinograph. *Engelmeier, P. K.* [1886-89] Mosc. S. Sc. Bll. 65 (No. 1) (1890) 89-.
- for drawing curves (elastic lamina) "tira-curve-opisometer." *Rossi Re, V. de.* Rm. N. Linc. At. 33 (1880) 232-.
- tracer. *Pirani, E.* Arch. Mth. Ps. 1 (1884) 113-.
- — and root finder. *Bashforth, F. B. A.* Rp. (1845) (pt. 2) 3-.
- tracing apparatus. *Cayley, A. L.* Mth. S. P. 4 (1871-73) 345-.
- —, designing of apparatus for. *Thallmayer, V.* Carl Rpm. 14 (1878) 713-.
- — machine. *Dechevrens, M.* C. R. 130 (1900) 1616-.
- —, mechanical. *Jessop, C. M.* QJ. Mth. 22 (1887) 151-.
- Curves described by Jopling's apparatus, nature. *Tredgold, T.* Tilloch Ph. Mg. 62 (1823) 211-.
- , mechanical description. *Russell, W. H. L.* [1869] R. S. P. 18 (1870) 72-.
- Curvimeter (for finding length of curves). *Crane, W. R.* Kan. Un. Q. 4 (1896) 121-.
- Cycloids, description. *Kracht, H.* Dingler 289 (1893) 108-.
- Descriptive geometry, apparatus for illustrating. *Hoza, F.* Arch. Mth. Ps. 53 (1871) 188-.
- — — teaching. *Weissand, —.* N. A. Mth. 14 (1855) 47-.
- Diagonal scale principle applied to angular measurement in circular slide-rule. *Campbell, J. R.* L. Mth. S. P. 6 (1875) 73-.
- Diagrammometer, cypher. *Kozlov, V. S.* Rs. Ps.-C. S. J. 23 (Ps.) (1891) 180-; C. R. 111 (1890) 166-.
- Difference engine, new. *Grant, G. B.* Am. J. Sc. 2 (1871) 113-.
- Division of angles and arcs of circles. *Murphy, I. J.* Belfast NH. S. Rp. & P. (1892-98) 47-.
- — straight line into equal parts, machine for. *Soave, F.* Verona Mm. S. It. 8 (1799) 56-.
- — toothed wheels, machine for. *Glasser, A. von.* Dingler 252 (1884) 56-.
- Drawing instruments, especially ellipsographs in theory and practice. *Fischer, E.* Dingler 255 (1885) 188-, 217-, 261-.
- Egg-oval, perfect, machine for drawing; and advantageous method of producing curvilinear figures. *Hay, D. R.* Edinb. N. Ph. J. 40 (1846) 331-.

0080 Instruments

- Ellipses, paradox in tracing. *Lametz*, —. *Metz* Ac. Mm. 79 (1900) 69-.
- Ellipsograph. *Léninn*, *M.* St Pét. Ac. Sc. Bll. 5 (1839) 377-.
- , *Thallmayer*, *V.* *Dingler* 226 (1877) 237-; 227 (1878) 337-.
- , *Sidersky*, *D.* *Arch. Mth. Ps.* 65 (1880) 420-.
- , *Hendricks*, *J. E.* *Des Moines Anal.* 10 (1883) 161-.
- , *Grant*, *G. B.* *Franklin I. J.* 122 (1886) 301-.
- , *Schromm*, *F.* *Z. Instk.* 12 (1892) 139-.
- , *Delone*, *N.* *Mosc. S. Sc. Bll.* 83 (No. 2) (1894) 11-; *Fachr. Ps.* (1895) (Ab. 1) 351-.
- , *Riefler*, *C. Z.* *Instk.* 16 (1896) 115-.
- of Proclus. *Blake*, *E. M.* [1898] *Am. J. Mth.* 22 (1900) 146-.
- and protractor. *Burnham*, *S. W.* *Pop. As.* 4 (1897) 181-; 336-.
- Ellipsographs. *Zistl*, *M.* *Cztg. Opt.* 5 (1884) 245-; 258-; 265-.
- , *Hartmann*, *W.* *Z. Instk.* 11 (1891) 285-.
- Ellipsometer. *Henry*, *F. (x)* *A. Pon. Chauss.* 3 (1872) 459-.
- , *Jannettaz*, *E.* *Fr. S. Mn. Bll.* 15 (1892) 237-; 16 (1893) 205-.
- Elliptographs, and a mechanical rocker for detecting oscillations. *Alexander*, *T.*, & *Thomson*, *A. W.* *Ir. Ac. T.* 29 (1887-92) 673-.
- Epi- and hypo-cycloids, apparatus for tracing. *Thallmayer*, *V.* *Dingler* 228 (1878) 312-.
- Equations, apparatus for graphic solution. *Lill*, *E.* *Les Mondes* 16 (1868) 325-.
- of form $\lambda^n + a\lambda^2 + b\lambda + c = 0$, *Mehmke's* apparatus for solution. *Mlodzievskij*, *B. K.* *Mosc. S. Sc. Bll.* 92 (No. 1) (1896) 36-; *Fachr. Mth.* (1896) 72-.
- with imaginary roots, apparatus for graphic solution. *Lill*, *E.* *N. A. Mth.* 7 (1868) 363-.
- , machine for solution. *Girard*, *P. von.* *Wien Jb. Pol. I.* 14 (1829) 62-.
- , —, —, *Bashforth*, *F.* *B. A. Rp.* (1845) (pt. 2) 3-.
- , —, —, *Boys*, *C. V.* *L. Ps. S. P.* 7 (1886) 355-; *Ph. Mg.* 21 (1886) 241-.
- , —, —, *Cunynghame*, *H.* *L. Ps. S. P.* 7 (1886) 360-; *Ph. Mg.* 21 (1886) 260-.
- , —, —, *Ocagne*, *M. d'.* *J. de Ps.* 5 (1896) 310-.
- , —, —, *Meslin*, *G.* *C. R.* 130 (1900) 888-.
- , —, —, of linear. *Veltmann*, *W.* *Z. Instk.* 4 (1884) 338-.
- , —, —, simultaneous linear. *Thomson*, (Sir) *W. (Lord Kelvin)*. [1878] *R. S. P.* 28 (1879) 111-.
- , —, —, transcendental. *Herschel* (Sir) *J. F. W.* [1832] *Camb. Ph. S. T.* 4 (1833) 425-.
- , mechanical solution. *Kempe*, *A. B.* [1872] *Mess. Mth.* 2 (1873) 51-.
- , —, —, *Guarducci*, *F.* *Rm. R. Ac. Linc. Mm.* 7 (1891) 219-.
- , 3rd order, mechanical solution by a quadrilateral linkage. *Greenhill*, *A. G.* *Mess. Mth.* 5 (1876) 162-.

Instruments 0080

- Equations, 3rd order, solution by slide-rule. *Bour*, *E.* [*J. E. E.*] *C. R.* 44 (1857) 22-.
- , 4th and 5th orders, solution by moving mechanisms. *Ameseder*, *A.* *Wien Ak. Sb.* 93 (1886) (Ab. 2) 380-.
- to 7th order, machine for solution. *Lalanne*, *L.* *C. R.* 11 (1840) 859-.
- — — — — (Lalanne). *Cauchy*, *A. L.* *C. R.* 11 (1840) 959-.
- Generation of orthogonal projections of plane curves, mechanical. *Delaunay*, *N.* *Z. Mth. Ps.* 40 (1895) 242-.
- Genesis of quantity demonstrated by means of two mechanical instruments. *Araldi*, (*Capitano*) *A.* (vii) [1828] *Mod. Mm. Ac. Sc.* 1 (1858) (pte. 4) 90-.
- Geometrical drawing, apparatus for. *Zmurko*, *W. [L.] (xii)* *Kosmos (Lw.)* 5 (1880) 44-.
- Geometrography applied to different solutions of a problem. *Lemoine*, *E.* *Par. S. Mth. Bll.* 20 (1892) 132-.
- Harmonic analyser. *Henrici*, *O.* [1894] *L. Ps. S. P.* 13 (1895) 77-; *Ph. Mg.* 38 (1894) 110-.
- , —, *LeConte*, *J. N.* *Ps. Rv.* 7 (1898) 27-.
- , —, *Michelson*, *A. A.* & *Stratton*, *S. W.* *Am. J. Sc.* 5 (1898) 1-.
- , —, for graphic determination of coefficients in Fourier series. *Bervy*, *N.* *Mosc. Obs. A.* 3 (Pt. 2) (1896) 109-.
- , —, *Henrici* and *Coradi's*. *Grabowski*, *L.* *Wiad. Mt.* 4 (1900) 236-.
- , —, reading amplitude and epoch directly. *Sharp*, *A.* [1894] *L. Ps. S. P.* 13 (1895) 89-; *Ph. Mg.* 38 (1894) 121-.
- , —, remarks on *Henrici's*. *Perry*, *J.* [1894] *L. Ps. S. P.* 13 (1895) 97-; *Ph. Mg.* 38 (1894) 125-.
- , —, simple form. *Yule*, *G. U.* *L. Ps. S. P.* 13 (1895) 403-; *Ph. Mg.* 39 (1895) 367-.
- Helical epicycloids, instrument for describing. *Burnaby*, *S. B.* *Amt. Moh. S. J.* 3 (1879) 115-; 160-; 194-; 228-.
- Herpolhode of Poinot, and an apparatus of Darboux and Koenigs. *Gilbert*, *P.* *Brux. S. Sc. A.* 14 (1890) (Pt. 2) 25-.
- Hydraulic integration of differential equations. *Petrovitch*, *M.* *Am. J. Mth.* 20 (1898) 293-.
- Hyperbolas, apparatus for drawing. *Thallmayer*, *V.* *Dingler* 228 (1878) 108-.
- , method of drawing. *Burch*, *G. J.* *Ph. Mg.* 41 (1896) 72-.
- , —, —, *Burch's*. *Wadsworth*, *F. L. O.* *Ph. Mg.* 41 (1896) 372-.
- Hyperbolograph. *Cunynghame*, *H.* [1886] *L. Ps. S. P.* 8 (1887) 67-; *Ph. Mg.* 22 (1886) 138-.
- Instruments for ovals and for drawing in perspective. *B.*, *R.* *Nicholson J.* 9 (1804) 122-.
- Integral of product of 2 given functions, instrument for calculating. *Thomson*, (Sir) *W. (Lord Kelvin)*. *R. S. P.* 24 (1876) 266-.
- Integrating, new. *Barker*, *A. H.* *Sc. Abs.* 1 (1898) 381-.
- Integrating differential equations of first order, *Petrovich's* apparatus. *Price*, *W. A.* *Ph. Mg.* 49 (1900) 487-.
- Integration, mechanical. *Abdank-Abakanowicz*, *B.* *C. R.* 94 (1882) 783-.

- Integration, mechanical. *Nehls, C.* Civing. 20 (1874) 71-; 21 (1875) 131-, 199-, 261-.
- , —, applied to three bodies' problem. *Ström-gren, E.* Stockh. Öfv. (1900) 443-.
- , —, of general linear differential equation of any order with variable coefficients. *Thomson, (Sir) W. (Lord Kelvin).* R. S. P. 24 (1876) 271-.
- , —, — linear differential equations of 2nd order with variable coefficients. *Thomson, (Sir) W. (Lord Kelvin).* R. S. P. 24 (1876) 269-.
- , —, — the product of two functions. *Sutherland, W.* Ph. Mg. 20 (1885) 175-; 21 (1886) 141-.
- Integrator, Amsler's. *Nehls, C.* Hann. Z. Archt. Vr. 18 (1872) 534-.
- , *Abakanowicz, B.* (xn) Krk. Ak. (Mt.-Prz.) Rz. & Sp. 7 (1880) 75-.
- , cubical, description. *McElroy, G. W.* A. Mth. 3 (1887) 105-.
- , disk-globe-and-cylinder. *Thomson, (Prof.) Jas.* R. S. P. 24 (1876) 262-.
- , instrument for graphic integration. *Abdank-Abakanowicz, B.* C. R. 92 (1881) 402-, 515-.
- , mechanical, Amsler-Laffon's. *Merrifield, C. W.* Nv. Archt. T. 21 (1880) 252-.
- , —, for areas, etc. *Deprez, M.* C. R. 73 (1871) 785-; Les Mondes 27 (1872) 10-.
- , —, — $\int (Xdz + Ydy)$. *Cayley, A. B. A.* Rp. (1877) (Sect.) 18-.
- , —, — work done by a force. *Fuchs, K.* Mth. Term. Éts. 13 (1895) 239-; Mth. Nt. B. Ung. 13 (1897) 144-.
- , new form. *Marinovich, B.* Lum. Élect. 17 (1885) 529-.
- , — model. *Napoli, D. & Abdank-Abakanowicz, —.* C. R. 101 (1885) 592-.
- , *Žmurko's. Skibinski, P. K.* Kosmos (Lw.) 9 (1884) 185-; Wien Ak. D. 53 (1887) (Ab. 2) 35-.
- Integrators. *Hummel, —.* Dingler 275 (1890) 17-.
- , mechanical. *Abdank-Abakanowicz, B.* Lum. Élect. 18 (1885) 49-, 110-, 161-, 249-, 306-, 393-, 535-, 589-; 24 (1887) 3-, 54-, 161-.
- , two mechanical. *Fraser, A. Y.* Edinb. Mth. S. P. 4 (1886) 29-.
- Integrometer, new. *Abdank-Abakanowicz, B.* C. R. 95 (1882) 1047-.
- Involution and evolution of numbers, instrument for. *Roget, P. M.* [1814] Phil. Trans. (1815) 8-.
- Least squares, instrument for. *Bouniakowsky, V.* Pogg. A. 107 (1859) 463-.
- Linear differential equation of 2nd order, general mechanism for integrating. *Tait, P. G.* [1876] Edinb. R. S. P. 9 (1878) 118-.
- Link-work apparatus for describing curves. *Janse, L.* N. Arch. Wisk. 9 (*1882) 61-.
- Linkages for tracing conic sections. *Strong, W. M.* A. Mth. 8 (1893-94) 181-.
- , — x^m . *Freeland, F. T.* [1879] Am. J. Mth. 8 (1880) 316-.
- Logical machine, Jevons'. *Sonnenschein, E. A.* (xi) [1883] Birm. Ph. S. P. 4 (1885) 72-.
- Logical machine, new. *Marquand, A.* Am. Ac. P. 21 (1886) 303-.
- Mathematical instruments, models etc., exhibition in Munich. *Dyck, W.* D. Mth. Vr. Jbr. 3 (1894) 39-.
- Mechanisms, new: projector, ellipsegraph, . . . *Delaunay, N.* Bll. Sc. Mth. 19 (1895) 240-.
- Mensurator and cœlometer. *Adams, M. L.* Mth. S. P. 5 (1874) 141-.
- Military surveying circle. *Delanges, P.* Bologna Mm. I. It. 1 (pte. 2) (1806) 63-.
- Mirror for drawing in perspective. *Schöne-mann, P.* Z. Nw. 10 (1874) 102-.
- Multiplication by a mechanical device. *Berdellé, C.* As. Fr. C. R. (1887) (Pt. 2) 210-.
- Nautical instruments, and calculating apparatus. *Gelcich, E.* Cztg. Opt. 5 (1884) 242-, 253-, 268-, 277-; 6 (1885) 9; 7 (1886) 265-.
- Nicolas's gyrograph for tracing arcs of large circles. *Gobin, A.* Lyon A. S. Ag. 8 (1864) 520-.
- Nürnberg, German Museum, mathematical collection. *Günther, S.* Lplidna. 14 (1878) 93-, 108-.
- , —, — instruments. *Günther, S. D.* Nf. Vh. (1893) (Th. 2, Hälfte 1) 32.
- Observations, mechanical calculation of results. *Favaro, A.* Ven. I. At. 2 (1876) 559-.
- Pantograph; proof of chief theorem, etc. *Hausner, A.* Arch. Mth. Ps. 65 (1880) 334-.
- , scenographic, for projecting geometrio figures. *Magistrini, G. B.* Bologna Opusc. Sc. 1 (1817) 289-.
- Pantographs. *Ott, A.* Cztg. Opt. 17 (1896) 161-.
- , proof of properties ($1^r + 2^r + 3^r \dots x^r$). *Ligowski, W.* [1879] Arch. Mth. Ps. 65 (1880) 329-.
- Parabola, apparatus for drawing. *Thallmayer, V.* Dingler 227 (1878) 430-.
- Parabolograph. *Delone, N. B.* Ra. Ps.-C. S. J. 29 (Ps.) (1897) 76.
- Parallel lines, instrument for drawing. *Nicholson, W.* Nicholson J. 2 (1799) 429-.
- , —, —. *Suverkrop, J. P.* [1885] Sc. S. Arts T. 11 (1887) 73-.
- rule, new. *B., R.* Nicholson J. 9 (1804) 212-.
- , —. *Boswell, J. W.* Nicholson J. 13 (1806) 196-.
- "Perspecteur-calquer," instrument for drawing in perspective. *Breton, —.* Isère S. Bll. 27 (1892) 659-.
- Perspective drawer. *Brauer, E.* Z. Mth. Ps. 43 (1898) 163-.
- drawing instrument. *Brunel-Barennes, — de.* Dingler 34 (1829) 325-.
- , Verly's instrument, report. *Rodolphe, —.* Metz Mm. Ac. 20 (1838-39) 258-.
- , scale for dividing vanishing lines. *Cumberland, G.* Nicholson J. 16 (1807) 1-.
- Plagiograph aliter skew pantigraph. *Sylvester, J. J.* Nt. 12 (1875) 168.
- , history. *Sylvester, J. J.* Nt. 12 (1875) 214-.
- Plane surface, formation, law of progress of accuracy. *Airy, (Sir) G. B.* Ph. Mg. 42 (1871) 107-.

0080 Instruments

- Planigraph, projecting tortuous curve on plane. *Delone, N. B.* [1895] Vars. S. Nt. Tr. (1895-96) (C. R., Ps. C.) No. 2, 3 pp.
- Planimeter. *Amsler, J.* Zür. Vjschr. 1 (1856) 41-, 101-.
- , *Amsler's. Decher, G.* Dingler 140 (1856) 27-; 141 (1856) 29-.
- , —, *Weisbach, J.* Civing. 4 (1858) 1-.
- , —, *Wittstein, T.* Hann. Z. Archt. Vr. 7 (1861) 289-.
- , —, *Petsch, —.* A. Pon. Chauss. 16 (1868) 124-.
- , —, *Combes, C. P. M.* A. Mines 19 (1871) 278-.
- , —, *Bramwell, F. J.* B. A. Rp. 42 (1872) 401-.
- , —, *Purvis, F. P.* Ph. Mg. 48 (1874) 11-.
- , —, *Rateau, A.* As. Fr. C. R. (1896) (Pt. 2) 130-.
- , —, proof of principle. *Steggall, —.* Edinb. Mth. S. P. 7 (1889) 25-.
- , —, theory. *Zhbitkovskii, A. K.* (xii) [1865] Kazan Un. Mm. (1864, Ps.-Mth. No. 1), 219-.
- , —, *Aldis, W. S.* N. Eng. I. Mn. E. T. 28 (1879) 211-.
- , —, *Thiré, A.* A. Mines 11 (1887) 121-.
- , Bouniakovsky's and modification. *Decher, G.* Dingler 140 (1856) 27-.
- , construction. *Schultén, N. G. af.* (viii) Helsingf. Öfv. 5 (1863) 245-.
- , Coradi's. ? *Coradi, —.* V. Nost. Eng. Mg. 82 (1885) 465-.
- , hatchet. *Hill, F. W.* [1894] L. Ps. S. P. 13 (1895) 229-; Ph. Mg. 38 (1894) 265-.
- , history. *Favaro, A.* Förster Al. Bauztg. 38 (1873) 68-, 93-.
- , —, *Wolf, R.* Zür. Vjschr. 37 (1892) 111-; 38 (1893) 3-.
- , of Hohmann and Coradi. *Fischer, G.* Cztg. Opt. 5 (1884) 74-.
- , Lippincott. *Greenhill, A. G.* [1899] Sc. Abs. 3 (1900) 234.
- , Maass, description. *Günther, F.* Cztg. Opt. 7 (1886) 247-.
- , new. *Eckert, —, & Hamann, —.* Cztg. Opt. 18 (1897) 125.
- , —, description. *Maevskij, J. A.* [1889] Vars. S. Nt. Tr. (1889-90) (C. R., Ps. C.) No. 2, 7-.
- , — form. *Maxwell, J. C.* Edinb. T. So. S. Arts 4 (1856) 420-.
- , — (Beverley). *Balfour, J. M.* [1865] Edinb. Sc. S. Arts T. 7 (1868) 193-.
- , — (1852). *Baranoffsky, E.* Helsingf. Acta 4 (1856) 3-.
- , — (1855). *Bouniakowsky, V.* [1855] St Pét. Ac. Sc. Bll. 14 (1856) 152-.
- polar. *Amsler, J.* Dingler 140 (1856) 321-; 141 (1856) 326-.
- , —, *Amsler's. Decher, G.* Dingler 141 (1856) 330-.
- , —, —, *Schinz, E.* Bern Mt. (1857) 152-.
- , —, —, *Nehls, C.* Civing. 20 (1874) 71-.
- , —, —, results. *Hartogh Heys van Zou-teen, H.* Arch. Néerl. 5 (1870) 440-.

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- Planimeter, polar, determination of constant. *Schell, A.* Wien SB. 56 (1867) (Ab. 2) 325-.
- , —, general theory. *Schell, A.* Wien SB. 58 (1868) (Ab. 2) 189-; Carl Rpm. 11 (1875) 406-.
- , —, note. *Resal, H.* C. R. 77 (1873) 509-.
- , Richard. ? *Anon.* Sc. Abs. 1 (1898) 635.
- , rolling, theory. *Fenner, P.* Cztg. Opt. 7 (1886) 183-.
- , solutions of electric problems. *Atkinson, L. B.* Elect. 22 (1889) 702-; 23 (1899) 29-.
- , Trunk's. *Hübner, A.* Arch. Mth. Ps. 44 (1865) 337-.
- , Wetli's. *Stampfer, S.* Wien SB. (1850) (Ab. 1) 134-.
- Planimeters. *Moberg, A.* (viii) [1859] Helsingf. Öfv. 5 (1863) 53-.
- , *Beck, A.* Riga Cor.-Bl. 40 (1898) 99-.
- , free. *Bouniakowsky, V.* St Pét. Ac. Sc. Bll. 2 (1860) 567-.
- and similar instruments. *Kohlmorgen, O.* Westf. Vr. Jbr. (1890) 126-.
- of Wetli, Decher, and Amsler. *Miller, W. H.* Ph. Mg. 16 (1858) 230-.
- Problems of 3rd degree, instrument for solution. *Simon, C.* Les Mondes 4 (1864) 547-.
- Proportion-table, equivalent to sliding-rule 13' 4" long. *Everett, J. D.* Ph. Mg. 32 (1866) 350-.
- Protractor, semicircular, improved form. *Stewart, J. N. Z. I. T.* 3 (1870) 316-.
- for trisection angles. *Alexander, J. H.* Silliman J. 7 (1849) 243-.
- Quadrature, instrument for. *Boileau, P.* C. R. 15 (1842) 594-.
- Refraction through prism; apparatus to illustrate deviation of ray. *Marcucci, S.* Rv. Sc.-Ind. 27 (1895) 101-.
- Scale, accuracy of, and limit of perception. *Neovius, E.* Helsingf. Öfv. 23 (1881) 71-.
- "Scoligraph, unicursal," for drawing algebraic curves. *Boguslawsky, A.* [1881] Mosc. S. Nt. Bll. 57 (1882) (Pt. 2) 72-.
- Screw, use in mathematical instruments. *Carl, P.* Carl Rpm. 2 (1867) 37-.
- Sectograph (for dividing lines and angles, &c.). *Jones, T.* Tilloch Ph. Mg. 42 (1813) 401-.
- Sine and cosine quadrant. *Schreiber, C.* Cztg. Opt. 7 (1886) 38-.
- Spherical integrator, modification of a form of. *Smith, F. J.* Ph. Mg. 22 (1886) 147-.
- triangles, instrument for determining, by mechanical action. *Penrose, F. C.* As. S. M. Not. 36 (1876) 281-.
- Spherometer. *Mayer, A. M.* Am. J. Sc. 32 (1886) 61-.
- , new. *Krüss, H.* Cztg. Opt. 12 (1891) 63-.
- Spirals, Johnson's volutor for drawing. *Booth, J.* B. A. Rp. (1860) (Pt. 2) 60-.
- Square with parallel lines. *Chaussonot, (l'Ainé).* Par. Bll. S. Encour. 43 (1844) 4-.
- Stanhope logical and arithmetical machine. *Harley, (Rev.) R.* N. S. W. R. S. J. 24 (1890) 121-.

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- Stereoscopic drawing apparatus. *Jensen, J.* [1870] Arch. f. Ap. 4 (1871) 233-.
- Straight line apparatus, Hart's. *Darboux, G.* Bl. Sc. Mth. As. 3 (1879) 144-.
- Stupakoff's comparometer. *Basford, G. M.* Am. Eng. & Railroad J. 73 (1899) 59, 169.
- Tachymeter, Cairo's. *Puissant, L.* C. R. 3 (1836) 140, 200, 245-, 384.
- Tractoriograph (instrument for describing curves of "tractory" nature). *Kleritj, L.* Dingler 305 (1897) 234-, 260-.
- of Kleritj, and rod-planimeter. *Korselt, A.* Z. Mth. Ps. 43 (1898) 312-.
- Trigonometer, instrument for solving spherical triangles. *Braun, K.* (XII) Mth. Term. Éts. 1 (1883) 313-; Mth. Nt. B. Ung. 1 (1882-83) 283-.
- , Savy's. *Le Grand, G.* Aube Mm. S. Ag. 5 (1854) 235-.
- Trisection of angle, instrument for. *Burt, T. S.* Beng. As. S. J. 1 (1832) 499-.
- — — — — *Tate, T.* Ph. Mg. 19 (1860) 261-.
- — — — — *Cassani, P.* Ven. Aten. At. 1 (1878) 163-.
- — — — — *Longchamps, G. de.* As. Fr. C. R. (1893) (Pt. 2) 190-.
- — — — —, mechanical. *Russell, A. H.* Nt. 43 (1891) 547-.
- — — — —, angles, test. *Römis, A.* Cztg. Opt. 16 (1895) 253-.
- Vernier for line or curve with unequal divisions. *Artur, J. F.* Par. Bl. S. Encour. 50 (1851) 676-.
- , new form. *Ludlow, H. H.* V. Nost. Eng. Mg. 27 (1882) 196.
- or Nonius, priority. *Breusing, A.* [1879] As. Nr. 96 (1880) 129-.
- Verniers. *Matzka, W.* Grunert Arch. 34 (1860) 334-.

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- Addition machine. *Goss, J.* Tilloch Ph. Mg. 41 (1813) 166-.
- Arithmetical machine, Čebyšev's. *Bool, V. G.* von. Mosc. S. Sc. Bl. 91 (No. 1) (1894) 12-.
- — — — — with continuous motion. *Tchebitchef, P. L.* Rv. Sc. 4 (1882) 402-.
- — — — —, supplementary explanation. *Čebyšev, P. L.* Mosc. S. Sc. Bl. 91 (No. 1) (1894) 22.
- machines, history. *Mehmke, R.* Prace Mt.-Fiz. 6 (1895) 177-.
- Arithmometer, Thomas's. *Ettingshausen, A. von.* Wien SB. 24 (1857) 16-.
- — — — — *Reuleaux, F.* Civing. 8 (1862) 182-.
- — — — — *Hirn, G. A.* Les Mondes 3 (1863) 433-.
- — — — — *Junge, A.* Z. Mth. Ps. 9 (1864) 198-.
- — — — — *Zillmer, —.* I. Act. J. 15 (*1870) 25-.
- — — — — *Cavallero, A.* Cuyper Rv. Un. 8 (1880) 309-.

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- Arithmometer, Thomas's, actuarial use. *Gray, P.* I. Act. J. 17 (*1873) 249-; 18 (*1875) 20-, 123-.
- — — — —, adaptation of assurance formulæ to. *Hannington, J.* Assur. Mg. 12 (*1866) 184.
- — — — —, use. *Hannington, (Maj.-Gen.).* I. Act. J. 16 (*1872) 244-.
- — — — —, use. *Hirn, G. A.* A. Gén. Civ. 2 (1863) (pte. 2) 113-, 153-.
- — — — — *Hancock, W. J.* I. Act. J. 16 (*1872) 265-.
- — — — —, in constructing tables. *Carment, D.* I. Act. J. 22 (*1881) 368-; 23 (*1882) 232.
- Calculating apparatus, arithmetical puzzles. *Lucas, E.* Rv. Sc. 45 (1890) 1-.
- — — — — based on Napier's rods. *Bridge, J.* Ph. Mg. 9 (1880) 191-.
- — — — — circle. *Weiss, P.* C. R. 131 (1900) 1289-.
- — — — — instruments and machines. (2) Logarithmic scales. (3) Graphic processes. *Ocagne, M. d'.* A. Cons. Arts et Mét. 5 (1893) 231-, 323-; 6 (1894) 42-.
- — — — — machine. *Babbage, C.* Edinb. Ph. J. 8 (1823) 122-.
- — — — — *Olivier, T.* Par. Bl. S. Encour. 45 (1846) 153-.
- — — — — *Nystrom, J. W.* Franklin I. J. 21 (1851) 262-.
- — — — — *Selling, E. D.* Nf. Tbl. (1887) 234-; Würzb. Ps. Md. Sb. (1888) 148-; Cztg. Opt. 9 (1888) 3-.
- — — — — *Levänen, S.* Helsingf. Öfv. 38 (1896) 26-.
- — — — — *Siedentopf, H.* N.-Vorp. Mt. 30 (1899) xvii-.
- — — — — or arithmometer. *Hoyan, —.* (vi Adds.) Par. Bl. S. Encour. 21 (1822) 355-.
- — — — — *Thomas, —.* Moigno Cosmos 4 (1854) 72-, 186-.
- — — — — *Babbage's. Baily, F.* Tilloch Ph. Mg. 63 (1824) 355-.
- — — — — *Ménabréa, L. F.* Taylor Sc. Mm. 3 (1843) 666-.
- — — — — *Brit. Ass. Comm. B. A. Rp.* (1878) 92-.
- — — — — *Menabrea, (le gén.) L. F.* C. R. 99 (1884) 179-.
- — — — —, mechanical arrangements. *Babbage, (Maj.-Gen.) H. P.* B. A. Rp. (1888) 616-.
- — — — — for definite integrals. *Moseley, H.* B. A. Rp. (1841) (Pt. 2) 35-.
- — — — — duplex. *Küttner, W.* Dingler 300 (1896) 199-.
- — — — — *Ramsing, H. M.* Mth. Ts. 2 (1860) 65-.
- — — — — *Fowler's. De Morgan, A.* R. S. P. 4 (1840) 243-.
- — — — — *Henri Genaille's. Genaille, H.* As. Fr. C. R. (1894) (Pt. 2) 272-.
- — — — —, new. *Lalanne, L.* C. R. 9 (1839) 319-.
- — — — — *Fowler, —.* B. A. Rp. (1841) (Pt. 2) 39-.
- — — — — *Grant, G. B.* Am. J. Sc. 8 (1874) 277-.

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- Calculating machine, new. *Bollée, L. C.* R. 109 (1889) 737-.
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- , —, prospectus, &c. *Slonimsky, C. Z.* Crelle J. 28 (1844) 184-.
- , — for real roots of numerical equations. *Moth, F. X.* Wien D. 1 (1850) 105-.
- , —, report. *Wiberg, —.* C. R. 56 (1863) 330-.
- , —, Scheutz's. *Meidinger, H.* Dingler 156 (1860) 241-, 321-.
- , —, Selling's. *Poppe, A.* Dingler 271 (1889) 193-.
- , — machines. *Hélie, —.* Eure Rec. Tr. 2 (1842) 170-.
- , —, *Olivier, T.* Par. Bll. S. Encour. 42 (1843) 411-.
- , —, *Jomard, E. F.* Par. Bll. S. Encour. 42 (1843) 548-.
- , —, *Lauterburg, —.* Bern Mt. (1863) 20-.
- , —, *Warren, T. P. B.* Ph. Mg. 43 (1872) 396-.
- , —, *Edmondson, J.* [1885] L. Ps. S. P. 7 (1886) 81-; Ph. Mg. 20 (1885) 15-.
- , —, *Davis, H. S.* Pop. As. 4 (1897) 20-.
- , —, *Torres, L.* C. R. 130 (1900) 472-.
- , —, arithmograph. *Gathey, —.* Par. Bll. S. Encour. 15 (1816) 50-.
- , —, continuous. *Hele-Shaw, H. S.* Phil. Trans. 176 (1886) 367-.
- , —, history. *Mehmke, R.* D. Mth. Vr. Jbr. 3 (1894) 59-.
- , —, and instruments. *Ocagne, M. d'. Brux.* S. Sc. A. 17 (1893) (Pt. 1) 84-.
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- , —, theory. *Stamm, E.* Mil. I. Lomb. Rd. 2 (1865) 360-.
- Calculation and calculating machines. *Lucas, É.* As. Fr. C. R. (1884) (Pt. 1) 111-.
- , —, mechanical aids. *Sang, E.* I. Act. J. 16 (*1872) 253-.
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- Chinese-Japanese calculating machine, and Chinese Swan-Pan (calculating table). *Westphal, A.* (xn) D. Gs. Ostas. Mt. 1 (1873-76) (Heft 8) 27-, (Heft 9) 43-.
- Efficiency, apparatus for calculating. *Boys, C. V.* (ix) [1882] L. Ps. S. P. 5 (1884) 28-; Ph. Mg. 13 (1882) 193-.
- Logarithmic calculating rules, Lambert's. *Schweigger, J. S. C.* Schweigger J. 14 (1815) 115-.
- Slide-rule. *Burg, A.* Wien Jb. Pol. I. 16 (1830) 101-.
- , —, *Burdon, —.* C. R. 58 (1864) 573-.
- , —, *Mackesy, W. H.* Medley I. Eng. 4 (1867) 349-.
- , —, *Schwind, F. von* [1873] Innsb. Nt. Md. B. 4 (1874) liv-.

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- Slide-rule. *Boys, C. V.* Nt. 32 (1885) 627-.
- , —, employment. *Herrmann, E.* Oestr. Z. Brgw. 15 (1867) 193-.
- , —, *Charnoz, J.* Rv. Mar. et Col. 57 (1878) 493-.
- , —, English. *Sedlacek, E.* Hammer-schmidt Al. Oestr. Z. (1846) 439-, 451-, 465-, 478-; (1847) 182-, 221-, 318-, 342-, 365-, 390-, 401-.
- , —, Fuller's. *Fenton, J. J.* Vict. R. S. T. 22 (1886) 57-.
- , —, for gauging casks. *Young, (Dr) T.* QJ. So. 16 (1823) 357-.
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- , —, solution of equations in three variables. *San Roberto, P. di.* [1867] Tor. Mm. Ac. 25 (1871) 53-.
- , —, treatment of equation in two variables. *San Roberto, P. di.* Tor. At. Ac. Sc. 2 (1866-67) 454-.
- , —, use. *Boys, C. V.* V. Nost. Eng. Mg. 33 (1885) 512-.
- , —, rules, Everett's proportion-table. *Everett, J. D.* Ph. Mg. 32 (1866) 350-.
- , —, Fuller's calculating helix, and historical notes on calculating instruments with logarithmic divisions. *Favaro, A.* Ven. I. At. 5 (1879) 495-.
- , —, logarithmic. *Sedlacek, E.* Hammer-schmidt Al. Oestr. Z. (1847) 493-, 507-, 521-, 531-.
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- , —, —, —, *Taylor, H. M.* Camb. Ph. S. T. 18 (1900) 375-.
- , —, —, —, —, Wiener's model. *Cayley, A.* [1871] Camb. Ph. S. T. 12 (1879) 366-.
- , —, —, surfaces, construction of models. *Blythe, W. H.* QJ. Mth. 29 (1898) 206-.
- , —, —, model by Rodenburg. *Korteweg, D. J.* N. Arch. Wisk. 20 (1893) 63-; Fschr. Mth. (1893-94) 83.
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Abacus. *Knott*, C. G. Jap. As. S. T. 14 (1886) 18-.

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—, division, &c., graphic solution. *Péreaux*, E. A. Gén. Civ. 17 (1870-71) 735-.

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—, employment for representation of logical propositions. *Venn*, J. [1880] Camb. Ph. S. P. 4 (1883) 47-.

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- calculus, note on question. *Florov, P. S.* (xn) *Kharkov Mth. S. Com.* (1880) 36-.
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- — and application to statics of external forces on a beam. *Baldermann, O.* *Förster Al. Bauztg.* 46 (1881) 24-, 33-, 49-, 97.
- — applications. *Massau, J.* *Rv. Un. Mines* 16 (1884) 243-, 579-; 17 (1885) 1-; 20 (1886) 1-, 475-; 21 (1887) 85-, 308-, 572-; 22 (1887) 1-.
- — of certain types of differential equations. *Petrovitch, M.* *Par. S. Mth. Bll.* 27 (1899) 200-.
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- — curves. *Kráhnass, A.* *Chili S. Sc. Act.* 4 (1894) 3-.
- — differential equations. *Petrovitch, M.* *C. R.* 124 (1897) 1081-.
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- , —. *Stephanos, C.* Mth. A. 22 (1883) 589-.
- , —. *Weyr, E.* C. R. 98 (1884) 906-, 1320-.
- , —. *Hölder, O.* Gött. Nr. (1889) 34-.
- , —. *Study, E.* N.-Vorp. Mt. 31 (1900) 1-.

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- Quaternions and vector analysis, principles. *Peddie, W.* Edinb. Mth. S. P. 11 (1893) 85-.
- — vectors. *Knott, C. G.* Nt. 48 (1893) 516-.
- Quotient of vectors in space, product of matrices. *Wettum, T. B. van.* N. Arch. Wisk. 1 (1895) 68-; Fsch. Mth. (1893-94) 226.
- Quotients of space-directed lines. *Elliott, E. B.* Smiths. Misc. Col. 33 (1888) Art. 4, 106-; (Wash. Ph. S. Bll. 10 (1888).)
- Surfaces, cubic, class treated by quaternions. *Chace, A. B.* Am. J. Mth. 2 (1879) 315-.
- , quadric, treated by quaternions. *Lowell, A. L.* Am. Ac. P. 13 (1878) 222-.
- , theorems. *Hamilton, (Sir) W. R.* Ir. Ac. P. 4 (1850) 306-.
- Symbolic cubic, particular case. *Plarr, G.* [1881] Edinb. R. S. P. 11 (1882) 342-.
- equation satisfied by symbol of operation on a quaternion, existence. *Hamilton, (Sir) W. R.* Ph. Mg. 24 (1862) 127-.
- integration of differential equations in quaternions. *Pocklington, H. C.* [1899] Camb. Ph. S. P. 10 (1900) 59-.
- Tait's elementary treatise, note on paragraphs 439, 440. *Plarr, G.* C. R. 86 (1878) 1454-.
- Trigonometrical coefficients. *Dierke, G. A.* Educ. Times 41 (1888) 171.
- Trigonometry, plane, by quaternions. *Wood, De V.* Des Moines Anal. 9 (1882) 19-.
- Use of $\sqrt{-1}$ and alternate numbers i, j, k in study of infinitesimal deformations. *Perna, A.* Palermo Cir. Mt. Rd. 12 (1898) 322-.
- Vector expressions for curves. *Joly, C. J.* Ir. Ac. P. 4 (1896-98) 374-.
- Vectorial equation of the circumference. *Raimondi, R.* G. Mt. 25 (1887) 219-.
- function of 1st degree ϕp . *Alberti, V.* G. Mt. 37 (1899) 375-.
- Vectors and quaternions, theory. *Beez, —.* Z. Mth. Ps. 41 (1896) 35-, 65-.
- Wave-surface, electromagnetic, quaternion treatment. *Tait, P. G.* [1894] Edinb. R. S. P. 21 (1897) 165-.
- , Fresnel's quaternion investigations. *Tait, P. G.* QJ. Mth. 3 (1860) 190-.

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- Analytical geometry, use of imaginaries. *Stille, W. A.* Des Moines Anal. 1 [1874] 181-.
- Area of any closed circuit in space. *Hayward, R. B. L.* Mth. S. P. 4 (1871-73) 289-.
- Associated poles, and their representation by products. *Grassmann, H.* Gött. Nr. (1872) 567-.
- Ausdehnungen, multiple, simplest theorems. *Hoppe, R.* Arch. Mth. Ps. 64 (1879) 189-.
- "Ausdehnungslehre." *Grassmann, H.* Grunert Arch. 6 (1845) 337-.
- , geometric representation of imaginaries from standpoint of. *Schlegel, S. F. V.* Z. Mth. Ps. 23 (1878) 141-.

- "Ausdehnungslehre," Grassmann's. *Schlegel, V. Z. Mth. Ps.* 41 (1896) (*H.-lt. Ab.*) 1-41-.
- , —, applications. *Clifford, W. K. Am. J. Mth.* 1 (1878) 350-.
- , —, — to mechanics. *Schlegel, V. Civing.* 40 (1894) 59-.
- , —, — properties of circles. *Cox, H. QJ. Mth.* 25 (1891) 1-.
- , —, relation to modern geometrical methods. *Schlegel, S. F. V. Z. Mth. Ps.* 24 (1879) 83-.
- , —, mechanics according to principles of. *Grassmann, H. G. Mth. A.* 12 (1877) 222-.
- , —, and modern algebra. *Grassmann, H. G. Mth. A.* 7 (1874) 538-.
- , —, place in the associative algebra of quaternion type. *Joly, C. J. Ir. Ac. P.* 6 (1900-02) 13-.
- Barycentre of curvature of plane curves. *Steiner, J. G. Acad.* 101 (1844) 257-; 102 (1845), 1-, 121-.
- Barycentric calculus, application to problems in analytical geometry. *Minding, E. F. A. Crelle J.* 5 (1829) 397-.
- — based on composition of straight lines. *Möbius, A. F. Crelle J.* 28 (1844) 1-.
- Complex function, construction, theorem of Picard. *Stolz, O.* [1880] *Innsb. Nt. Md. B.* 11 (1881) 27-.
- functions, geometric representation. *Wittstein, T. Grunert Arch.* 7 (1846) 411-.
- variables, extension to 3 dimension space. *Hall, T. P. Iowa Ac. Sc. P.* 6 (1899) 202-.
- Composition of simultaneous and successive vectors. *MacFarlane, A. Science* 4 (1896) 346.
- Crystallography, parameters of, and vectors of higher order. *Voigt, W. Gött. Nr.* (1900) 355-.
- Curves with branches in several planes, existence. (Geometrical interpretation of $\sqrt{-1}$ and fractional powers). *Gregory, D. F. Camb. Mth. J.* 1 (1839) 259-.
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- , —, — to geometry. *Transeau, A. N. A. Mth.* 7 (1868) 145-, 193-, 241-.
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- Distance, theory. *Clifford, W. K. B. A. Rp.* 39 (1869) (*Sept.*) 9.
- Düring's vector conceptions. *Wessely, K. Arch. Mth. Ps.* 9 (1890) 393-.
- Electromagnetism, application of vector functions. *Petrini, H. Ups. S. Sc. N. Acta* 15 (1895) No. 14, 60 pp.
- Equations in linear and vector functions, note on solution. *Tait, P. G. Edinb. R. S. P.* 21 (1897) 497-.
- Equipollences, calculus, origin. *Laquière, E. M. As. Fr. C. R.* (1881) 76-.
- Equipollences, graphic solution of geometrical problems. *Bellavitis, G.* [1842] *Ven. Mm. I.* 1 (1843) 225-.
- , method. *Bellavitis, G. A. Sc. Lomb. Ven.* 7 (1837) 243-; 8 (1838) 17-, 85-; *Mod. Mm. S. It.* 25 (1855) 225-.
- , origin. *Bellavitis, G. Ven. I. Mm.* 19 (1876) 449-.
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- Forces, composition, deduced from general principles. *De Morgan, A.* [1859] *Camb. Ph. S. T.* 10 (1864) 290-.
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- , —, principles. *Macfarlane, A.* [1900] *N. Y. Am. Mth. S. Bll.* 7 (1901) 158, 178.
- multiplication of surfaces. *Chessin, A. S. A. Mth.* 9 (1894-95) 70-.
- sums and differences. *Barré de Saint-Venant, —. C. R.* 21 (1845) 620-.
- Geometry of arbitrary magnitudes. *Bugaev, N. V.* [1888] *Rec. Mth. (Moscou)* 14 (1890) 394-; *Fschr. Mth.* (1891) 725-.
- Grassmann's geometrical theories. *Ziwet, A. A. Mth.* 2 (1885-86) 1-, 25-.
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- — in projective geometry. *Burali-Forti, C. Palermo Cir. Mt. Rd.* 10 (1896) 177-, 254-; 11 (1897) 64-.
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- , —, — to elementary mechanics. *Genese, R. W. As. Fr. C. R.* (1894) (*Pt. 2*) 211-.
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- Hertz's and Poynting's equations. *Donati, L. Bologna Ac. Sc. Mm.* 7 (1897) 633-.
- Images in the representation of functions, theory. *Harris, R. A. A. Mth.* 4 (1888) 65-, 128.

- Imaginary binary straight lines. *Thieme, F. E.* Arch. Mth. Ps. 59 (1876) 426-.
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- or lateral curves, main features of theory. *Thieme, F. E.* Arch. Mth. Ps. 58 (1876) 185-.
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- and vector function. *Tait, P. G.* Edinb. R. S. P. 21 (1897) 160-, 310-; 22 (1900) 547-.
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- — —, theory. *Joly, C. J.* [1894] Ir. Ac. Tr. 30 (1892-96) 587-.
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- Parallelogram of forces, analytical proof. *Imshenetsky, W. G.* Fsch. Ps. (1889) (Ab. 1) 290-.
- Plane vectors, linear transformation. *Peano, G.* Tor. Ac. Sc. At. 31 (1895) 113- or 157-.
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- Polars, theory, and algebraic configurations, application of Ausdehnungslehre. *Grassmann, H. G.* [1877] Crelle J. Mth. 84 (1878) 273-.
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- — —. *Burkhardt, H.* D. Mth. Vr. Jbr. 5 (1901) (Heft 1) 43-.
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- ratios considered as trigonometric functions of angles. *Stringham, W. I.* (xii) [1879] J. H. Un. Cir. [1] (1882) 35.
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- which can be compounded, theory. *Berruti, G.* Tor. Ac. Sc. At. 29 (1894) 115-, 531-.
- Characteristics of systems of three dimensions. *Suvorov, T. M.* (xii) Kazan Un. Mm. 7 (1871) 3-.
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- trinomial equation in matrices of any order. *Sylvester, J. J.* C. R. 99 (1884) 527-, 576.
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- , classification. *Weyr, E.* C. R. 100 (1885) 966-.

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- , theory. *Cayley, A.* *Phil. Trans.* 148 (1858) 17-; 156 (1866) 25-.
- , —. *Buchheim, A. L.* *Mth. S. P.* 16 (1884-85) 63-.
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- , —. *Taber, H.* *Am. J. Mth.* 12 (1890) 337-.
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- Trinomial unilateral quadratic equation in matrices of second order. *Sylvester, J. J.* *QJ. Mth.* 20 (1885) 805-.
- Vectors and linear transformations, with physical applications. *Carvalho, E.* *Mh. Mth. Ps.* 2 (1891) 177-, 225-, 311-.
- — —, — — —, note on Carvallo's paper. *Peano, G.* *Mh. Mth. Ps.* 5 (1894) 136.

0860 Other special sorts of complex numbers.

- Associative imaginaries. *Cayley, A.* (*xii*) *J. H. Un. Cir.* [1] (1882) 211-.
- Biquaternions. *Clifford, W. K.* *L. Mth. S. P.* 4 (1873) 381-.
- , application to plane geometry. *Combebiac, —.* *Par. S. Mth. Bll.* 26 (1898) 259-.
- , coplanar, or doubly complex quantities, theory. *Seydler, A. J.* *Prag Sb.* (1881) 80-.
- , geometrical interpretation of results. *Hamilton, (Sir) W. R.* *Ir. Ac. P.* 5 (1853) 388-.
- , memoir. *Buchheim, A.* *Am. J. Mth.* 7 (1885) 293-.
- Classes of numbers derived from real numbers by dexter and sinister operations. *Burali-Forti, C.* *Tor. Ac. Sc. At.* 29 (1894) 382-.
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- numbers extended. *Vahlen, T.* *Königsb. Schr.* 38 (1897) [72]-.
- — formed from *n* principal units. *Weierstrass, K.* *Gött. Nr.* (1884) 395-.
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- —, — of higher. *Molien, T.* *Mth. A.* 41 (1893) 63-; 42 (1893) 308-.

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$$\sum_{r=1}^{r=n} r^k.$$

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- Thacker, A.* Camb. and Dubl. Mth. J. 5 (1850) 243-.
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- Catalan, E. C.* N. A. Mth. 15 (1856) 230-.
- Siacci, F. (viii)* A. Mt. 4 (1861) 46-.
- Lucas, É.* N. A. Mth. 9 (1870) 49-.
- Amigues, É.* N. A. Mth. 10 (1871) 79-.
- Dostor, G.* Arch. Mth. Ps. 54 (1872) 70-; 57 (1875) 222-.
- Lampe, E.* [1877] Crelle J. Mth. 84 (1878) 270-.
- Lucas, É.* N. A. Mth. 16 (1877) 18-.
- Peinár, M.* Časopis 6 (*1877) 279-; Fsch. Mth. (*1877) 110-.
- Dostor, G.* Arch. Mth. Ps. 63 (1879) 435-; 64 (1879) 310-.
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- Schier, O.* Wien Ak. Sb. 85 (1882) (Ab. 2) 503-.
- Boije af Gennäs, C. O.* Stockh. Ak. Hndl. Bh. 10 (1885) No. 4, 6 pp.
- Slavik, J.* Časopis 16 (1887) 121-; Fsch. Mth. (1887) 240.
- Locchi, E.* Mh. Mth. Ps. 4 (1893) 85-.
- Nielsen, N. N.* Ts. Mth. 4 (B) (1893) 1-; Fsch. Mth. (1893-94) 410-.
- Barbette, E.* Mathesis 14 (1894) 105-.
- Jung, V.* Časopis 28 (1899) 124-; Fsch. Mth. (1899) 247.

$$\sum_{r=1}^{r=n} r^k.$$

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- Brioschi, F. [1857] Tortolini A. 1 (1858) 43-.
- Dostor, G. Arch. Mth. Ps. 64 (1879) 353-.

$$\sum_{r=1}^{r=n} (2r-1)^k \quad (k=3).$$

- Dostor, G. Arch. Mth. Ps. 64 (1879) 356-.

$$\sum_{r=0}^{r=n-1} (a+rd)^m.$$

- Puiseux, V. Liouv. J. Mth. 11 (1846) 477-.
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- —, general rule for. *Zeipel*, E. V. von. *Stockh. Öfv.* 18 (1861) 425-.
- —, plan for table. *Crelle*, A. L. *Crelle J.* 51 (1856) 61-.
- Factors, table, geometric properties. *Möbius*, A. F. *Crelle J.* 22 (1841) 276-.
- Faculties. *Mathieu*, É. *N. A. Mth.* 17 (1858) 235-.
- *Lebesgue*, V. A. *N. A. Mth.* 19 (1860) 112-; 135-.
- *Guibert*, A. *N. A. Mth.* 1 (1862) 102-.
- , problem. *Berton*, —. *N. A. Mth.* 18 (1859) 191.
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- — of all numbers represented by integral function of n variables. *Hensel*, K. *Crelle J. Mth.* 116 (1896) 350-.
- —, asymptotic laws. *Gegenbauer*, L. *Wien Ak. Sb.* 92 (1886) (*Ab.* 2) 1290-.
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- Kronecker's principle of equivalence. *Busche*, E. [1891] *Hamb. Mth. Gs. Mt.* 3 (1900) 3-.
- Linear congruence, several unknowns. *Lebesgue*, V. A. *Liouv. J. Mth.* 4 (1859) 366.
- congruences, formulæ for resolution. *Zehfuss*, G. *Grunert Arch.* 32 (1859) 422-.
- —, homogeneous. *Steinitz*, E. [1896] *D. Mth. Vr. Jbr.* 5 (1901) (*Heft* 1) 87.
- —, modular system. *Kronecker*, L. *Crelle J. Mth.* 99 (1886) 329-.
- —, system. *Burnside*, W. *Mess. Mth.* 24 (1895) 51-.
- —, solution. *Studnička*, F. J. *Prag Sb.* (1875) 114-.
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- —, transformation of moduli. *Bouniakowsky*, V. *N. A. Mth.* 18 (1859) 168-.
- forms and congruence groups, composition. *Stouff*, X. C. R. 119 (1894) 993-.
- — with integral coefficients. *Frobenius*, G. [1878-79] *Crelle J. Mth.* 86 (1879) 146-; 88 (1880) 96-.
- — — variables. *Hurwitz*, A. *Gött. Nr.* (1897) 139-.
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- Moduli, 11, 9, 13, 101, tests. *Anton*, H. *Arch. Mth. Ps.* 49 (1869) 241-.

- Non-equivalent rectangular arrays, enumeration. *Landsberg, G.* Crelle J. Mth. 111 (1893) 87-.
- Number of congruent divisors of a number. *Traub, C.* Grunert Arch. 37 (1861) 277-.
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- — —, generalisation of theorem. *Schröder, J.* [1895] Hamb. Mth. Gs. Mt. 3 (1900) 219-.
- — — of given number, etc. *Ettingshausen, A. von.* Baumgartner Z. 5 (1829) 287-.
- — — integer. *Stieltjes, T. J.* (jun.) C. R. 96 (1883) 764-.
- — —, MSS. of Michael Stifel. *Hoppe, E.* Hamb. Mth. Gs. Mt. 3 (1900) 411-.
- — — of odd number having form $4h \pm 1$, $8h \pm 1$, $8h \pm 3$. *Andreevskii, M. A.* [1869] (xii) Rec. Mth. (Moscou) 6 (1872-73) (Pt. 1) 97-.
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- — — integers prime to m and $< m/k$. *Laguerre, E.* (x) Par. S. Mth. Bll. 1 (1873) 77-.
- — — numbers in a set not divisible by a prime. *Lipschitz, R. O. S.* C. R. 96 (1883) 327-.
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- prime to given number. *Rocquigny, F.* [G.] de. Les Mondes 52 (1880) 516-.
- — — one another. *Guilmin, A. N. A.* Mth. 10 (1851) 23-.
- — — —. *Schemmel, V.* [1868] Crelle J. 70 (1869) 191-.
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- — — —. *Minine, A.* Les Mondes 51 (1880) 333-; 53 (1880) 526-.
- — — —. *Nazimov, P. S.* [1881] (xii) Rec. Mth. (Moscou) 11 (1883-84) 603-.
- , various theorems. *Dienger, J.* Grunert Arch. 12 (1849) 425-; 16 (1851) 120-.
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- — of $a^n - 1$. *Bickmore, C. E.* Mess. Mth. 25 (1896) 1-; 26 (1897) 1-.
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- — $100n+1$. *Daublebsky von Sterneck, R.* Wien Az. 31 (1894) 2-.
- — $8m+3$, $8m+7$, $12m+5$, $12m+7$, etc. *Ivanov, J. J.* Fsch. Mth. (1899) 173.
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- of various linear forms. *Liouville, J.* Liouv. J. Mth. 3 (1858) 84-; 4 (1859) 399-; 5 (1860) 103-, 119-, 139-, 300-, 301-, 303-, 309-, 311-, 387-, 389-, 391-; 6 (1861) 1-, 7-, 28-, 31-, 55-, 93-, 97-, 101-, 103-, 105-, 107-, 109-, 147-, 150-, 185-, 187-, 189-, 191-, 193-, 195-, 197-, 199-, 201-, 203-, 205-, 207-, 219-; 7 (1862) 17-, 18-, 21-, 23-, 136; 8 (1863) 85-, 102-, 137-; 9 (1864) 135-, 137-.

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- — — — —, relations between. *Rogel, F.*
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- — — numbers prime to given number.
Liouville, J. C. R. 44 (1857) 753-.
- — products of quantities depending on
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- Viscovatoff, B.* St Pét. Ac. Sc. Mm. 1 (1803-06)
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- Gerono, G. C.* N. A. Mth. 1 (1842) 1-.
- Catalan, E. C.* N. A. Mth. 4 (1845) 257-, 405-.
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- Schultén, N. G. af (fil.)* [1845] Helsingf.
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- Cerquero, J. S.* Cadiz Period. M. Ci. 1
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- Terquem, O.* N. A. Mth. 8 (1849) 48-.
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- Heine, E.* Berl. Mb. (1866) 436-.
- Laurent, H.* N. A. Mth. 5 (1866) 540-.
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- , Pincherle, S. Par. Éc. Norm. A. 6 (1889) 145-.
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- , convergence. Halphen, G. H. C. R. 100 (1885) 1451-; 106 (1888) 1326-.
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- and certain series. Catalan, E. C. [1883] Brux. Ac. Mm. 45 (1884) (No. 6) 82 pp.
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- *Christoffel, E. B.* Crelle J. 58 (1860) 90-.
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- *Vahlen, K. T.* Crelle J. Mth. 115 (1895) 221-.
- , abnormal, of a function, distribution. *Padé, H. C. R.* 130 (1900) 102-.
- , differences. *Dormoy, H. N. A. Mth.* 5 (1846) 132-.
- , errors of principal and subsidiary. *Hargreaves, R.* Mess. Mth. 27 (1898) 152-.
- , generalisation. *Barbier, E. C. R.* 98 (1884) 1531-.
- , law of formation. *Minding, E. F. A. St Pét. Ac. Sc. Bll.* 13 (1869) 524-.
- , —, Euler's. *Schlegel, S. F. V. Z. Mth. Ps.* 22 (1877) 402-.
- , resultants. *Gegenbauer, L. Amst. Ak. Vs.* 5 (1897) 289-.
- and convergents, relation. *Seidel, L. Münch. Ab.* 7 (1855) 559-.
- converging, application of determinants. *Ramus, C. Kiöb. Ov.* (1856) 106-.
- fractions and converging multiples. *Heawood, P. J. Mess. Mth.* 26 (1897) 79-.
- for cube roots. *Seeling, P. Grunert Arch.* 8 (1846) 69-.
- *Cordone, G. G. Mt.* 32 (1894) 183-.
- definite integral $\int_{-1}^{+1} F(x) dx$. *Stieltjes, —.* C. R. 99 (1884) 508-.
- integrals. *Stieltjes, —.* C. R. 108 (1889) 1297-.
- descending power series. *Stieltjes, T. J. Toul. Fac. Sc. A.* 3 (1889) H, 17 pp.
- *Čebyšev, P.* [1892] St Pet. Ac. Sc. Mm. (Rs.) 71 (1893) (Suppl.) No. 3, 73 pp.; Fchr. Mth. (1892) 192-.
- development. *Schenkel, L. Crelle J. Mth.* 80 (1875) 95-.
- , geometrical view. *Klein, F. Gött. Nr.* (1895) 357-.
- doubly periodic. *Kahl, E. Grunert Arch.* 19 (1852) 158-.
- for e . *Hurwitz, —.* Königsb. Schr. 32 (1891) (Sb.) 59-.
- and e^e . *Sundman, K. F. Helsingf. Öfv.* 38 (1896) 57-.
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- $e^{-1}(\frac{1}{2})$. *Laguerre, E. Par. S. Mth. Bll.* 5 (1877) 95-.
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- equal. *Heilermann, —.* Schlömilch Z. 5 (1860) 362-.
- Euler's; and Wallis's theorem. *Bauer, G.* [1872] Münch. Ab. 11 (1873) (Ab. 2) 97-.
- expansion in series by means of. *Chebuishev, P. L.* [1865] (xii) Rec. Mth. (Moscou) [1] (1866) 291-.
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- Gauss's theorems, proof. *Clausen, T. Crelle J.* 3 (1828) 311-.
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- *Jacobi, C. G. J. Crelle J.* 69 (1868) 29-.
- (Jacobi). *Bachmann, P.* [1872] Crelle J. 75 (1873) 25-.
- *Poincaré, H. C. R.* 99 (1884) 1014-.
- *Minkowski, H. Par. Éc. Norm. A.* 13 (1896) 41-.
- geometric application. *Léger, É. Quetelet Cor. Mth.* 9 (1837) 483-.
- interpretation. *Lieblein, J. Z. Mth. Ps.* 12 (1867) 185-.
- indefinite, transformation to vulgar fractions. *Pezzi, F. Mod. S. It. Mm.* 11 (1804) 410-.
- infinite. *Schultén, N. G. af (fil.)* [1844-47] Helsingf. Acta 2 (1847) 661-; 3 (1852) 427-.
- *Spitzer, S. Grunert Arch.* 33 (1859) 418-.
- *Studnička, F. J. Prag Sb.* (1892) (Mth. Nt.) 254-; Časopis 22 (1893) 15-.
- , convergence. *Pringsheim, A. Münch. Ak. Sb.* 28 (1899) 295-; 30 (1901) 233.
- , evaluation. *Spitzer, S. Grunert Arch.* 30 (1858) 331-; 33 (1859) 474-.
- for infinite series. *Buzengeiger, K. H. J. Zach M. Cor.* 22 (1810) 513-.
- *Muir, T. Edinb. R. S. T.* 27 (1876) 467-.
- irrational numbers. *Gyldén, H. C. R.* 106 (1888) 1584-, 1777-.
- $\int_{-1}^{+1} e^{-x^2} dx$. *Jacobi, C. G. J. Crelle J.* 12 (1834) 346-.
- Jacobi's formula
- $$\frac{d^n (1-x^2)^{n+\frac{1}{2}}}{dx^n} = C \sin [(n+1) \cos^{-1} x].$$
- Hermite, C.* [1875] Liège S. Sc. Mm. 6 (1877) No. 7, 7 pp.
- law of formation. *Günther, S.* [1875] Wien Ak. D. 36 (1876) (Ab. 2) 187-.
- for n th roots. *Seeling, P. Arch. Mth. Ps.* 46 (1868) 80-.
- for n th surds. *Hoffmann, K. E. Arch. Mth. Ps.* 64 (1879) 9-.
- with negative quotients. *Saalschütz, L. Crelle J. Mth.* 120 (1899) 132-, 242-, 354.
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- numerical values. *Glaisher, J. W. L.* [1874] QJ. Mth. 13 (1875) 255-.
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- *Broager, P. D. Kjöb. Dn. Vd. Selsk. Afh.* 8 (1841) 145-.

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- periodic. *Bianchi, G.* [1844] *Mod. Mm. S. It.* 23 (1846) 219-.
- *Rodrigues, O. N. A. Mth.* 4 (1845) 109-.
- *Catalan, E. C. N. A. Mth.* 4 (1845) 126-.
- *Galois, E. Liouv. J. Mth.* 11 (1846) 385-.
- *Siebeck, H. Crelle J.* 33 (1846) 68-.
- *Le François, (Prof.)* —. *Brux. Ac. Bll.* 16 (1849) 338-.
- *Stern, M. A.* [1854] *Crelle J.* 53 (1857) 1-.
- *Simon, O. E. Grunert Arch.* 33 (1859) 448-.
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- *Appell, P. Arch. Mth. Ps.* 62 (1878) 183-.
- *Jonquière, E. de. C. R.* 96 (1883) 568-, 1297-.
- *Muir, T. Edinb. R. S. P.* 12 (1884) 389-, 578-.
- *Selivanov, D. T. Rec. Mth. (Moscou)* 15 (1891) 635-; *Fachr. Mth.* (1891) 221-.
- *Landsberg, G. Crelle J. Mth.* 109 (1892) 231-.
- (Landsberg). *Netto, E. Crelle J. Mth.* 110 (1892) 349-.
- , algebraic. *Bortolotti, E. Palermo Cir. Mt. Rd.* 9 (1895) 136-.
- , generalisation. *Bortolotti, E. Palermo Cir. Mt. Rd.* 6 (1892) 1-.
- , arithmetical theorem. *Sylvester, J. J. Mess. Mth.* 19 (1890) 63-.
- , calculation. *Anon.* (vi 552) *Gergonne A. Mth.* 14 (1823-24) 337-.
- , closed form. *Hoffmann, K. E. Arch. Mth. Ps.* 62 (1878) 310-.
- , composition of periods. *Jonquière, E. de. C. R.* 96 (1883) 694-, 832-.
- , convergence. *Thiele, T. N. (xii) Ts. Mth.* 3 (1879) 70-.
- , —. *Stolz, —. Innsb. Nt. Md. B.* 15 (1886) xxi-; 17 (1887) xviii-.
- , —. *Pringsheim, A.* [1900] *Münch. Ak. Sb.* 30 (1901) 463-.
- , convergents. *Oettinger, L. Arch. Mth. Ps.* 43 (1865) 301-.
- , — (Oettinger). *Strehlke, F. Arch. Mth. Ps.* 48 (1868) 1-.
- , —. *Ocagne, M. d'. C. R.* 108 (1889) 499-.
- , equivalent to square-roots of integers. *Ely, G. S. A. Mth.* 1 (1884-85) 72-.
- , given number of quotients. *Seeling, P. Arch. Mth. Ps.* 49 (1869) 4-.
- , identities between convergents. *Jonquière, E. de. C. R.* 96 (1883) 1351-, 1420-, 1490-, 1571-, 1721-.
- and indeterminate analysis. *Tédénat, —. Gard Not. Tr. Ac.* (1811) 254-.
- , *n*th convergent. *Strehlke, F. Arch. Mth. Ps.* 42 (1864) 343-.
- , with one term. *Clausen, T. Crelle J.* 3 (1828) 87-; *N. A. Mth.* 5 (1846) 203-.
- , — symmetric period. *Musso, G. G. Mt.* 33 (1895) 1-.

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- for π . *Sylvester, J. J. Ph. Mg.* 37 (1869) 373-.
- *Jung, V. Casopis* 9 (*1880) 157-; *Fachr. Mth.* (*1880) 149-.
- , —, Sylvester's and other forms. *Muir, T. Ph. Mg.* 47 (1874) 331-.
- primes of form $4\lambda + 1$, as sum of 2 squares. *Smith, H. J. S. Crelle J.* 50 (1855) 91-.
- probability of large quotients. *Gylden, H. Stockh. Öfv.* (1888) 349-.
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- —. *Schultén, N. G. af (fil.)* [1846-47] *Helsingf. Acta* 2 (1847) 1023-; 3 (1852) 435-.
- —. *Schaar, M. Brux. Ac. Bll.* 19 (1852) 16-.
- —. *Hoffmann, K. E. Arch. Mth. Ps.* 64 (1879) 1-.
- —. *Hansted, B. G. Teix. J. Sc.* 2 (1880) 154-.
- —. *Sylvester, J. J. C. R.* 108 (1889) 1037-, 1084-.
- —. *Dolbina, J. N. A. Mth.* 10 (1891) 134-.
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- —, convergence. *Falk, M. Ts. Mt. Fys.* 4 (1871) 249-.
- —, periodicity. *Schultén, N. G. af (fil.)* [1846] *Helsingf. Acta* 2 (1847) 1063-.
- —, —. *Charves, —. Bll. Sc. Mth. As.* 1 (1877) 41-.
- quotients in arithmetical progression. *Hurwitz, A. Zür. Vjschr.* 41 (1896) (*Festschr., Th.* 2) 34-.
- for rational fractional power. *Matthiessen, L. Z. Mth. Ps.* 10 (1865) 315-.
- reduction to series. *De Morgan, A. Ph. Mg.* 24 (1844) 15-.
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- representation as definite integrals. *Spitzer, S. Grunert Arch.* 30 (1858) 81-.
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- for roots. *Collins, E. (vn) St. Pét. Ac. Sc. Bll.* 7 (1840) 357-.
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- — numbers. *C. Camb. Mth. J.* 3 (1843) 120-.
- roots and their convergence. *Doppler, C. Wien Jb. Pol. I.* 17 (1832) 175-.
- for series. *Kausler, C. F.* [1802] *St Pét. Ac. Sc. Mm.* 1 (1809) 156-.
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- —. *Schubert, F. T.* [1815] *St Pét. Ac. Sc. Mm.* 7 (1820) 139-.

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- *Le Barbier, —.* Gergonne A. Mth. 21 (1830-31) 262-.
- *Heine, H. E.* Crelle J. 32 (1846) 205-.
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- *Hankel, H.* Leip. B. 14 (1862) 17-.
- *Broman, K. E.* Ts. Mt. Fys. 4 (1871) 139-.
- *Mollame, V.* [1882] Catania Ac. Gioen. At. 17 (1883) 129-.
- *Gambioti, D.* Bologna Rd. (1890-91) 43-.
- *Čebyšev, P.* St. Pet. Ac. Sc. Mm. (Rs.) 64 (1891) (Suppl.) No. 7, 67 pp.
- and similar functions. *Meyer, F.* Königsb. Schr. 38 (1897) [57]-.
- simple, convergence. *Padé, H.* C. R. 112 (1891) 988-.
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- for solution of linear differential equation. *Laguerre, E.* [1878-79] C. R. 87 (1878) 923-; Par. S. Mth. Bll. 8 (1880) 21-.
- square roots. *Ivory, J.* [1800] Edinb. R. S. T. 5 (1805) 20-.
- *Booth, J.* Camb. Mth. J. 2 (1841) 226-.
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- *Arndt, F.* Crelle J. 31 (1846) 343-; Grunert Arch. 12 (1849) 211-.
- *Serret, J. A.* Liouv. J. Mth. 12 (1847) 518-.
- *Badon-Ghijben, J.* [1864] Amst. Vs. Ak. 17 (1865) (Ntk.) 121-.
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- *Schlömilch, O.* Z. Mth. Ps. 17 (1872) 70-.
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- , periodicity. *Crelle, L.* Arch. Sc. Ps. Nt. 6 (1898) 366-.
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- of series by. *Horner, W. G.* Thomson A. Ph. 11 (1826) 416-; 12 (1826) 48-.
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- Wallis's. Euler, L.* [1780] St Pét. Ac. Sc. Mm. 5 (1815) 24-.
- for $\left(\frac{x+1}{x-1}\right)^w$. *Laguerre, E.* [1879] Par. S. Mth. Bll. 8 (1880) 36-.
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- $\frac{m}{m+1} - \frac{m'}{m'+1} - \frac{m''}{m''+1}$ etc. *Schultén, N. G.* af (fil.) [1844] Helsingf. Acta 2 (1847) 629-.
- $\frac{1}{1+2+3+}$ etc. *Amoretti, F.* N. A. Mth. 14 (1855) 40-.
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- Bouniakowsky, V.* [1847] St Pét. Ac. Sc. Bll. 6 (1848) 196-.
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- class. *Palmström, A.* Christiania Skr. (Mth.-Nt. Kl.) (1899) No. 7, 10 pp.
- Diophantine analysis, advance. *Euler, L.* St Pét. Ac. Sc. Mm. 11 (1830) 1-.
- , elliptic and Abelian integrals, use in. *Jacobi, C. G. J.* Crelle J. 13 (1835) 353-.
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- , problems. *Fuss, N.* [1820] St Pét. Ac. Sc. Mm. 9 (1824) 151-.
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- , Fermat's solution. *Roberts, S.* As. Fr. C. R. (1886) (Pt. 2) 43-.
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- , —. *Boije af Gennäs, C. O.* N. A. Mth. 19 (1880) 278-.
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- triangle with bisectors of sides rational. *Euler, L.* [1779] St Pét. Ac. Sc. Mm. 2 (1810) 10-.
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- Crelle, A. L.* Berl. Ab. (1840) 1-.
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- *Binet, J. P. M.* Liouv. J. Mth. 6 (1841) 449-.
- *Heger, I.* Wien SB. 21 (1856) 550-; Wien D. 14 (1858) 1-.
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- $u^m + v^n = w^k$. Ermakov, V. [1898] Rec. Mth. (Moscou) 20 (1899) 293-.
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- Stern, M. A. [1862] Crelle J. 61 (1863) 334-.
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- , —, —, 3rd. *Thomae*, C. J. *Z. Mth. Ps.* 26 (1881) 134-.
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- Lejeune-Dirichlet*, G. *Berl. Ab.* (1833) 101-; *Berl. B.* (1840) 49-.
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- , —, *Dirichlet's formula. Arndt, F.* *Crelle J.* 56 (1859) 100.
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- , —, —, *formulæ. Lerch, —.* *Bll. Sc. Mth.* 21 (1897) 290-.
- , —, *Legendre's symbol and Moebius's numbers. Lerch, M.* *Prag České Ak. Fr. Jos. Rz. (Třída 2)* 7 (1898) Art. 6, 12 pp.; *Prag Fr. Jos. Ac. Sc. Bll. (Mth. Nt.)* 5 (1898) 33-.
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- , *Dirichlet's method. Levänen, S.* *Helsingf. Öfv.* 35 (1893) 57-.
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- , —, —, *Euler's view. Degen, C. F.* [1823] *St Pét. Mm. Sav. Étr.* 1 (1831) 29-.
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- , with complex argument. *Busche, E.* [1892-93] *Crelle J. Mth.* 110 (1892) 338-; *Hamb. Mth. Gs. Mt.* 3 (1900) 103-.
- , formulæ concerning. *Lerch, —.* *G. Teix. J. Sc.* 12 (1895) 129-.
- , *Bertolani, G.* *G. Mt.* 34 (1896) 1-.
- $\phi^{-1}(\pi')$, finding. *Cayley, A.* *Ph. Mg.* 14 (1857) 539-.
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- , etc., equations depending on. *Bugaev, N. V.* [1874] (xii) *Rec. Mth. (Moscou)* 7 (1874-75) (Pt. 1) 424-; (ix) *Bll. Sc. Mth. As.* 10 (1878) 102-.
- $E(ax+b)+1-(ax+b)$. *Čebyšev, P.* [1866] *St Pet. Ac. Sc. Mm. (Rs.)* 10 (*1867) (Suppl.) No. 4, 54 pp.
- $F(k)$, theorem. *Liouville, J.* *Liouv. J. Mth.* 14 (1869) 1-, 260-.
- $\zeta_1(n)$, expressing sum of divisors of n . *Liouville, J.* *Liouv. J. Mth.* 14 (1869) 263-.
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- $\phi(n)$ and $\phi(n, N)$. *Smith, H. J. S.* *L. Mth. S. P.* 7 (1875-76) 208-.
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- $\psi(a)$ of Jacobi, theory. *Schwering, K.* *Crelle J. Mth.* 93 (1882) 334-.
- $Q_p = \binom{n}{1} + \binom{n}{2} + \dots + \binom{n}{p}$, theorem of Stieltjes. *Cesáro, E.* *C. R.* 96 (1883) 1029-.
- u , properties. *Cesáro, E.* *N. A. Mth.* 3 (1884) 431-.
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- $\psi(p, q)$, theorems. *Lerch, M.* *Bll. Sc. Mth.* 12 (1888) 121-.
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- (z). *Kronecker, L.* *Crelle J. Mth.* 106 (1890) 346-.
- , applications. *Hacks, J.* *Acta Mth.* 14 (1890-91) 329-.
- $N(n)$ and $L(n)$. *Gram, J. P.* [1890] *Kjøb. Dn. Vd. Selsk. Skr.* 7 (1890-94) 1-. (*With French résumé.*)
- $\sigma(n)$, recurring formula for. *Glaisher, J. W. L.* *Mess. Mth.* 21 (1892) 122-.
- in theory of numbers (with tables). *Mertens, F.* *Wien Ak. Sb.* 106 (1897) (Ab. 2a) 761-.
- — — — —, course of. *Daublebsky von Sterneck, R.* *Wien Ak. Sb.* 106 (1897) (Ab. 2a) 835-.
- $E(n)$, Cesáro's formula. *Olttramare, G.* *As. Fr. C. R.* (1893) (Pt. 2) 287-.
- $\phi_p(n) = n^p \left(1 - \frac{1}{a^p}\right) \left(1 - \frac{1}{b^p}\right) \dots$. *Čistjakov, I. I.* [1894] *Rec. Mth. (Moscou)* 17 (1895) 530-; *Fsch. Mth.* (1893-94) 269-.
- $\psi_n(k, h) = \sum \left(\frac{s}{h}\right) e^{\frac{2k\pi i}{h}}$. *Séguier, P. de.* *Liouv. J. Mth.* 5 (1899) 55-.

2920. Irrationality and transcendence of particular numbers, such as e and π . (See also 6810.)

- Eisenstein's theorem on series for root of algebraic equation. *Hermite, C.* *L. Mth. S. P.* 7 (1875-76) 173-.
- — — — —, *Gomes Teixeira, F.* *Arch. Mth. Ps.* 3 (1886) 315-.
- Exponential function. *Hermite, C.* *C. R.* 77 (1873) 18-, 74-, 226-, 285-.
- — — — —, irrationality and transcendence. *Stieltjes, —.* *C. R.* 110 (1890) 267-.
- Irrational quantities, algebraic, theorem. *Liouville, J.* *C. R.* 18 (1844) 910-.
- Transcendental numbers deduced from probabilities. *Bouniakowski, V.* *St Pét. Ac. Sc. Bll.* 1 (1836) 177; *St Pét. Ac. Sc. Mm.* 3 (1838) 457-, 517-.
- — — — —, two theorems. *Grönwall, H.* *Stockh. Öfv.* (1897) 623-; (1898) 153-.
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- arithmetical character. *Borel, É.* *C. R.* 128 (1899) 596-.
- calculation. *Bretschneider, C. A.* *Grunert Arch.* 3 (1843) 27-.
- , *Stuđnička, F. J.* *Časopis* 20 (1891) 61-; *Fsch. Mth.* (1891) 440-.
- from continued fraction. *Glaisher, J. W. L.* *B. A. Rp.* 41 (1871) (Sect.) 16-.
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 —, change in Hermite's first proof. *Venske, O.* *Gött. Nr.* (1890) 335-.
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 — —, demonstration. *Fort, O.* *Schlömilch Z.* 7 (1862) 46-.
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 — —, irrationality. *Padd, H.* *Bll. Sc. Mth.* 12 (1888) 144-.
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- La Place, P. S. (le marquis) de.* *Par. Ec. Pol.* J. 8 (1809) (15 cah.) 229-.
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- , — — memoirs by Burmann. *Lagrange, J. L., & Legendre, —.* *Par. Mm. de l'I.* 2 (1799) (H.) 13-.
- , researches. *Franchini, P.* *Mod. S. It. Mm.* 11 (1804) 254-; 12 (1805) 160-; *Lucca At. Ac.* 5 (1829) 289-; 7 (1831) 97-.
- , —. *Brioschi, F.* *C. R.* 56 (1863) 659-.
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- Series, etc. *Catalan, E. C.* [1877-89] *Brux. Ac. Sc. Mm.* 42 (1878) (No. 3) 32 pp.; 48 (1892) (No. 1) 98 pp.
- Synthesis, algebraic. *Cauchy, A. L.* *C. R.* 16 (1843) 867-, 967-, 1039-; 18 (1844) 803-.
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- — with oscillations in every interval. *Köpcke, A.* Mth. A. 34 (1889) 161; 35 (1890) 104-.
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- — — — — *Kowalewski, G.* Leip. Mth. Ps. B. 52 (1900) 214-.
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- Discontinuity, curious examples. *Plateau, J. A. F.* Brux. Ac. Bil. 43 (1877) 84-, 255-.
- of functions, theorem. *Casorati, F.* Mil. I. Lomb. Rd. 1 (1868) 123-.
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- *Darboux, G.* [1874] Par. Éc. Norm. A. 4 (1875) 57-; 8 (1879) 195-.
- , application to analytic formulæ. *Libri, G.* C. R. 15 (1842) 401-.
- connected with continuous. *Baire, R.* C. R. 126 (1898) 1621-.
- developable by continuous. *Baire, R.* C. R. 126 (1898) 884-.
- , real, of real variable, analytical representation. *Severini, C.* Tor. Ac. Sc. At. 33 (1897) 762- or 1002-; 34 (1898) 199-, 374- or 325-, 518-.
- , representation. *Rawson, R.* [1846] Manch. Ph. S. Mm. 8 (1848) 235-.
- , sum, theorem of Abel's. *Catalan, E. C.* Liège S. Sc. Mm. 15 (1888) No. 1, 153-.
- , theorem, proof. *Baire, R.* Par. S. Mth. Bil. 28 (1900) 173-.
- , theory. *Piola, G.* [1880] Mod. Mm. S. It. 20 (1828) 578-.
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- indices. *Liventsov, A. I.* (xii) Rec. Mth. (Moscou) 8 (1876) (Pt. 1) 277-.
- Functional powers. *Collins, E.* [1835] St Pét. Ac. Sc. Mm. 3 (1839) 313-.
- problems. *Abel, N. H.* Mg. Nivd. 1 (1823) 216-; Crelle J. 2 (1827) 386-.
- *Decay, S.* (xii) Mag. Tud. Ak. Eta. 7 (No. 6) (1873) 80-.
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- , application to pure geometry. *Holst, E.* [1879] Par. S. Mth. Bil. 8 (1880) 52-.
- , approximate representation, application of method of least squares. *Schlömilch, O.* Schlömilch Z. 3 (1858) 124-.
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- — — —, — — — — *Mittag-Leffler, G.* Palermo Cir. Mt. Rd. 14 (1900) 217-.
- — — — with derivatives of every order. *Maurer, L.* Mth. A. 41 (1893) 377-.
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- — — —, theory. *Echols, W. H.* A. Mth. 8 (1893-94) 65-.
- — two real variables. *Borel, É.* Par. Éc. Norm. A. 13 (1896) 79-.

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- — — — —, and the idea of arbitrary function. *Borel, É.* C. R. 121 (1895) 811-.
- — — — —, within a finite range. *Ascoli, G.* Mil. I. Lomb. Rd. 22 (1889) 817-, 438-, 686-, 804-.
- — — several real variables, differentiation and integration. *Bettazzi, R.* G. Mt. 22 (1884) 133-, 200.
- — — with recurring derivatives. *Sang, E.* [1866] Edinb. R. S. T. 24 (1867) 523-.
- — — representation by a curve (strip). *Klein, F.* (viii) Erlang. Sb. Ps. Md. S. 6 (1874) 52-.
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- — — transformation into explicit. *Cauchy, A. L.* C. R. 38 (1854) 944-.
- — — — — monodromic and monogenous. *Cauchy, A. L.* C. R. 40 (1855) 878-.
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- Mean value, theorem. *Stringham, I.* As. S. Pac. Ph. 2 (1890) 100-; 3 (1891) 112.
- Ordered functions. *Somigliana, C.* Rm. R. Ac. Linc. Rd. 8 (1899) (Sem. 2) 125-.
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- — — general. *Ruffini, P.* [1806] Mod. S. It. Mm. 13 (1807) 292-.
- Rational functions, approximate square roots. *Bugaev, N. V.* [1881] (xii) Rec. Mth. (Moscou) 10 (1882-83) (Pt. 1) 524-.
- — — elements of a theory. *Kraus, L.* Časopis 14 (1885) 49-; Fsch. Mth. (1885) 369-.
- Real non-analytic functions, development. *Painlevé, P.* C. R. 126 (1898) 459-.
- Reciprocal functions. *Cauchy, A. L.* Par. S. Phlm. Bll. (1818) 178-.
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- Simple functions, gradation. *Oettinger, L.* Crelle J. 11 (1894) 75-, 178-; 12 (1894) 295-; 13 (1895) 292-.
- Singularities, new general condensation principle. *Cantor, G.* Mth. A. 19 (1882) 588-.
- Summatorial functions, properties. *Hill, C. J. D.* Sk. Nt. F. 8 (1860) 518-.
- Sums. (Björling.) *Falk, M.* Ts. Mt. Fys. 4 (1871) 71-.
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- — — inversion. *Kneser, A.* Mth. A. 45 (1894) 446-.
- Theorem. *Grolous, J.* Par. S. Phlm. Bll. 12 (1875) 95-.
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- — — *Poincaré, H.* Par. S. Mth. Bll. 11 (1883) 112-.
- — — applications. *Krey, H.* Z. Mth. Ps. 26 (1881) 857-.
- — — on determination of u, v to satisfy $uf(x) + vF(x) = R$. *Cauchy, A. L.* Baumgartner Z. 1 (1826) 88-.
- Theorems. *Prym, F. E.* Crelle J. 71 (1870) 223-.
- — — *Thomae, C. J.* Gött. Nr. (1878) 466-.
- — — two, of Tchebitchef's, generalisation. *Minine, A.* Les Mondes 55 (1881) 185-.
- Transformation of functions. *Deflers, —.* Par. S. Phlm. Bll. (1819) 161-.
- — — *Nicholson, P.* Tilloch Ph. Mg. 62 (1823) 168-, 244-, 348-, 433-.
- — — *Buquoy, G. von.* Oken Isis (1827) 130-.
- — — *Collins, E.* St Pét. Ac. Sc. Mm. 1 (1831) 583-.
- — — *Novi, G.* Tortolini A. 1 (1850) 517-.
- — — *Schlömilch, O.* Liouv. J. Mth. 8 (1863) 99-.
- — — general. *Boole, G.* Camb. and Dubl. Mth. J. 3 (1848) 112-.
- — — into isotropic means. *Cauchy, A. L.* C. R. 34 (1852) 159-; 43 (1856) 261-.
- — — by substitution. *Collins, E.* [1826] St Pét. Ac. Sc. Mm. 1 (1831) 181-.
- — — and simplification, methods by interpolation. *Richelmy, P.* [1855] Tor. Mm. Ac. 17 (1858) 245-.
- Weierstrass's function, $f(x) = \sum_{n=0}^{\infty} b^n \cos(a^n \pi x)$. *Wiener, L. C.* Crelle J. Mth. 90 (1881) 221-.
- $z = f(x, y)$, graphic representation. *Lalanne, L.* Par. S. Phlm. PV. (1843) 71-.
- $f(x)f(x+1) \dots f(x+h)$, value. *Gasparis, A. de.* Nap. Rd. 1 (1852) 199-.
- $F(x, y)$, when a function of $\phi(x, y)$, conditions. *Dienger, J.* Grunert Arch. 21 (1853) 219-.
- $f(x)$, Wronski's expansion. *Echols, W. H.* N. Y. Mth. S. Bll. 2 (1898) 178-.

3220 Infinite series; infinite products and other infinite processes. (See also 5610, 5620.)

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- Fontana, G. Verona S. It. Mm. 2 (1784) 386-.
- Paoli, P. Verona S. It. Mm. 4 (1788) 429-.
- Parseval, M. A. [1799] Par. Mm. Sav. Etr. 1 (1806) 638-.
- Bianchi, G. [1844] Mod. Mm. S. It. 23 (1846) 239-.
- Malmsten, C. J. Crelle J. 38 (1849) 1-.
- Dienger, J. Crelle J. 38 (1849) 266-, 331-.
- Tremoil, —. N. A. Mth. 9 (1850) 66.
- Björkling, E. G. Stockh. Öfv. 10 (1853) 147-.
- Schlömilch, O. Schlömilch Z. 1 (1856) 180-; 5 (1860) 132-.
- Kinkelin, H. Bern Mt. (1858) 88-.
- Greer, H. R. QJ. Mth. 3 (1860) 262-, 370-.
- Isely, M. Neuch. Bll. 6 (1861-63) 356-.
- Cockle, Jas. [1863] (u) Mess. Mth. 2 (1864) 196-.
- Lindman, C. F. Arch. Mth. Ps. 50 (1869) 219-.
- Enneper, A. Z. Mth. Ps. 15 (1870) 47-.
- Schlömilch, O. X. Leip. Mth. Ps. B. 29 (1877) 101-.
- Barbour, L. G. Des Moines Anal. 8 (1881) 191-.
- West, É. Liouv. J. Mth. 7 (1881) 111-.
- Catalan, E. C. Liège S. Sc. Mm. 12 (1885) No. 2, 148-, 152-, 206-, 282-, 294-.
- Cesáro, E. G. Teix. J. Sc. 7 (1886) 171-; 8 (1887) 15-.
- Biehler, C. N. A. Mth. 6 (1887) 243-.
- Gutzmer, A. G. Teix. J. Sc. 8 (1887) 81-.
- Studnička, F. J. Časopis 16 (1887) 81-; Fsch. Mth. (1887) 227.
- Weyr, E. G. Teix. J. Sc. 8 (1887) 97-.
- Catalan, E. Brux. Ac. Bll. 18 (1889) 41-.
- Tauber, A. Mh. Mth. Ps. 8 (1897) 278-.
- Absolutely summable series, series (M) and analytical continuation. Borel, É. C. R. 181 (1900) 830-.
- Algebraic series. Sidler, G. Zür. Vjschr. 1 (1856) 180-; Bern Mt. (1899) 13-.
- , new. Wallace, J. Silliman J. 7 (1824) 278-; 9 (1825) 98-.
- , — (Wallace). B. (vi Adds.) Silliman J. 8 (1824) 131-; 9 (1825) 293-.
- Analytic series. Svanberg, J. Stockh. Ak. Hndl. 22 (1801) 30-.
- , —, genetic explanation. Barfuss, F. W. Grunert Arch. 8 (1846) 387-.
- Applications to arithmetic. Sardi, C. G. Mt. 7 (1869) 257-.
- Approximation to geometric means by series of arithmetical and harmonic means. Mathieu, J. J. A. N. A. Mth. 18 (1879) 529-.
- series. Meyer, A. N. Ts. Mth. 5 (B) (1894) 81-; 6 (B) (1895) 41-, 73-; Fsch. Mth. (1893-94) 241.
- Approximations and series. Houzeau, J. C. Brux. Ac. Bll. 41 (1876) 961-.

- Asymptotic values of certain series. Le Roy, É. Bll. Sc. Mth. 24 (1900) 245-.
- , —, infinite approximations, and order of infinity in solution of equations. Du Bois-Reymond, P. Mth. A. 8 (1875) 363-, 574-.
- Bernoulli's functions. Baraniecki, M. A. Krk. Ak. (Mt.-Prz.) Rz. 13 (1886) 188-; Fsch. Mth. (1885) 416.
- Binet's series, and products of a large number of factors. Gilbert, P. Brux. S. Sc. A. 10 (1886) (Pt. 2) 191-.

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- Ampère, A. M. Gergonne A. Mth. 15 (1824-25) 369-.
- Burg, A. Crelle J. 1 (1826) 367-; Wien Jb. Pol. I. 16 (1830) 171-.
- De Morgan, A. Camb. Mth. J. 3 (1843) 61-.
- Barfuss, F. W. Grunert Arch. 5 (1844) 155-; 7 (1846) 3-; 8 (1846) 387-.
- (Barfuss.) Schlömilch, O. Grunert Arch. 5 (1844) 437-; 10 (1847) 321-.
- Bianchi, G. [1844] Mod. Mm. S. It. 23 (1846) 239-.
- Terquem, O. N. A. Mth. 9 (1850) 459-.
- Heine, H. E. Crelle J. 55 (1858) 279-.
- Hinricks, G. Mth. Ts. 2 (1860) 38-.
- Janni, V. G. Mt. 12 (1874) 229-, 312.
- Lanza, G. Des Moines Anal. 1 (1874) 177-.
- Gohierre de Longchamps, —. N. A. Mth. 17 (1878) 101-.
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- , Knight, T. Phil. Trans. (1816) 331-; (1817) 245-.
- , Herapath, J. Thomson A. Ph. 13 (1819) 365-.
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- , Colburn, W. Bost. J. Ph. 2 (1825) 474-.
- , Strong, T. Silliman J. 12 (1827) 182-.
- , Crelle, A. L. Crelle J. 4 (1829) 305-; 5 (1830) 187-.
- , Cerquero, J. S. Quetelet Cor. Mth. 10 (1838) 202-.
- , Roche, —. N. A. Mth. 1 (1842) 42-, 118-.
- , Coz, H. Camb. and Dubl. Mth. J. 7 (1852) 98-.
- , Paque, A. Liège Mm. S. Sc. 10 (1855) 1-.
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- , properties derivable from. *Young, J. R.* *Ph. Mg.* 33 (1848) 268-.
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- fractional index, demonstration. *Robertson, A.* *Phil. Trans.* (1806) 305-.
- or negative index, demonstration. *Anon.* (vi 1170) *Thomson A. Ph.* 7 (1816) 346-.
- — —, —. *Rodrigues, O.* *Liouv. J.* *Mth.* 3 (1838) 550-.
- — —, Euler's demonstration. *Muirhead, R. F.* *Edinb. Mth. S. P.* 17 (1899) 38-.
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- — —, —. *Voss, A.* *Mth. A.* 24 (1884) 42-.
- — — and products. *Pringsheim, A.* *Mth. A.* 22 (1883) 455-.
- Continued identity, method. *Kummell, C. H.* *A. Mth.* 5 (1889-90) 85-; iv.
- Continuity of sums, theorem of Cauchy. *Du Bois-Reymond, P.* *Mth. A.* 4 (1871) 135-.
- — —, two theorems of Abel. *Pringsheim, A.* *Münch. Ak. Sb.* 27 (1898) 343-.

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- Binet, J. P. M.* *Liouv. J. Mth.* 6 (1841) 495-.
- Cauchy, A. L.* *C. R.* 19 (1844) 141-, 157.
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- Schultén, N. G. af (fil.)* [1844] *Helsingf. Acta* 2 (1847) 733-.
- Cauchy, A. L.* *C. R.* 20 (1845) 126-.
- Lebesgue, V. A.* *N. A. Mth.* 4 (1845) 66-.
- Malmsten, C. J.* *Grunert Arch.* 8 (1846) 419-.
- Terquem, O.* *N. A. Mth.* 5 (1846) 101-.
- Timmermans, J. A.* *Brux. Ao. Bll.* 13 (1846) 140-.
- Schaar, M.* *Brux. Mm. Cour.* 4°, 22 (1846-47) 9 pp.
- Schlömilch, O.* *Grunert Arch.* 14 (1850) 105-.
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- Kinkelin, H.* *Bern Mt.* (1858) 57-.
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- Petersen, J. P. C.* (xii) *Ts. Mth.* 3 (1873) 49-.
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- Kohn, G.* *Arch. Mth. Ps.* 67 (1882) 63-.
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- Lerch, M.* *Prag Sb.* (1890) 1 (*Mth. Nt.*) 219-.
- Cohen, E.* *N. A. Mth.* 10 (1891) 453-.
- Gilbert, P.* *Brux. S. Sc. A.* 15 (1891) (Pt. 1) 69-.
- Bryant, R.* [1895] *L. Mth. S. P.* 27 (1896) 69-.
- Lerch, M.* *D. Nf. Vh.* (1899) (*Th.* 2, *Hälfte* 1) 6-.
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- and approximate value of functions of high numbers. *Lobatschewsky, N.* (vi *Adds.*) *Kazan Mm. Un.* (1835) (*cah.* 2) 211-.
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- — — (Borel's formulæ). *Kluyver, J. C.* *Amst. Ak. Vs.* 8 (1900) 331-; *Amst. Ak. P.* 2 (1900) 302-.
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- — — comparison. *Cesáro, E.* *Rm. R. Ac. Linc. Rd.* 4 (1888) (*Sem.* 1) 115-.
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$\int_0^{\frac{\pi}{2}} \frac{x F(x) dx}{1+p \sin^2 x \cos^2 x}$, F being a goniometrical function. Bierens de Haan, D. Amst. Ak. Vs. M. 12 (1878) 325-; Arch. Néerl. 13 (1878) 389-.

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- $\int_0^1 (\log x)^{2n-2} \log \left(\frac{1+x}{1-x} \right) \frac{dx}{x}$ etc. Scott, R. F. Mess. Mth. 10 (1881) 142-.
- $\int_0^\pi \frac{f(e^{2i\theta}) + f(e^{-2i\theta})}{\sqrt{1-2a \cos \theta + a^2}} d\theta$, reduction. Silva, J. A. Martins da. G. Teix. J. Sc. 3 (1881) 65-.
- $\int_0^\infty \frac{\cos ax}{(a^2+x^2)^{\frac{1}{2}(2p+1)}} dx$. Thomson, J. J. QJ. Mth. 18 (1882) 377-.
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- $\int_0^{2\pi} \frac{f(\sin \phi, \cos \phi) d\phi}{F(\sin \phi, \cos \phi)}$. Laguerre, E. C. R. 100 (1885) 624-.
- $\int_0^\infty \frac{\sin ax}{\sin bx} \frac{dx}{1+x^2}$ and related integrals. Schläfli, L. Acta Mth. 7 (1885) 187-.
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- $\int_0^\pi \cot(x-a) dx$. Gomes Teixeira, F. G. Teix. J. Sc. 9 (1889) 113-; Fsch. Mth. (1889) 282-.
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- $\int_0^{2\pi} \log \{(x-a \cos \theta)^2 + (y-b \sin \theta)^2\}^{\frac{\cos}{\sin} m\theta} d\theta$. Gibson, G. A. Edinb. Mth. S. P. 10 (1892) 83-.
- $\int_0^\infty \frac{e^{a i \phi} z^{a i} dz}{1-z e^{i \phi}}$, formulæ deduced from. Lerch, M. Časopis 21 (1892) 218-; Fsch. Mth. (1892) 265-.

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- $\int_a^b F(x) \frac{dx}{z-x}$. Sonin, N. St Pét. Ac. Sc. Mm. 38 (1892) No. 14, 44 pp.
- $\int_0^{2\pi} \frac{\sin^p x \cos^q x}{\cos} \sin(mx) dx$, integration. Studnička, F. J. Časopis 23 (1894) 67-; Fsch. Mth. (1893-94) 481.
- $\int_0^\pi e^{a\theta} \sin^m \theta d\theta$. Forsyth, A. R. QJ. Mth. 27 (1895) 216-.
- $\int \frac{\cos yx}{(a^2+b^2x^2)^n} dx$. Oltramare, G. As. Fr. C. R. (1895) (Pt. 1) 182.
- $\int_0^\infty \frac{\sin ax}{x} dx = \frac{\pi}{2}$, generalisation. Störmer, C. Christiania F. (1895) No. 4, 11 pp.
- $\frac{2}{\pi} \int_0^\infty \arctan \frac{a}{x} \arctan \frac{b}{x} dx = \log \frac{(a+b)^{a+b}}{a^a b^b}$, proof. Lerch, M. [1899] Časopis 29 (1900) 39-; Fsch. Mth. (1899) 391.
- $\int_0^{\frac{\pi}{2}} (\log 2 \cos \phi)^m \phi^n d\phi$, value. Morley, F. [1899] N. Y. Am. Mth. S. Bil. 7 (1901) 390-.
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$$\int_0^{\infty} \int_0^{\infty} \phi(ax^m \pm by^n) x^{p-1} y^{q-1} dx dy,$$

$$\int_{-\infty}^{+\infty} \int_{-\infty}^{+\infty} \phi(ax^m \pm by^n) x^{p-1} y^{q-1} dx dy.$$

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$$\int_b^c \int_0^b \frac{\log(\mu^2 - \nu^2) d\mu d\nu}{\sqrt{(c^2 - \mu^2)(\mu^2 - b^2)(c^2 - \nu^2)(b^2 - \nu^2)}}.$$

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$$\frac{dz(1-zz)^2}{(1+zz)\sqrt{(1+6zz+z^4)^3}}$$
 and
$$\frac{dz(1+zz)^2}{(1-zz)\sqrt{(1-6zz+z^4)^3}}.$$

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— —
$$\int \frac{x^m dx}{(1+a_{(1)}x+a_{(2)}x^2+a_{(3)}x^3+\dots+a_{(n)}x^n)^n}.$$
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— —
$$\frac{x+A}{\sqrt{x^4+ax^3+\beta x^2+\gamma x+\delta}} dx.$$
 Tchebicheff, P. [1860] St Pét. Ac. Sc. Bll. 3 (1861) 1-.

— —
$$\frac{a+bx+cx^2+\dots+px^n}{A+Bx+Cx^2+\dots+Px^n} \frac{dx}{\sqrt{(a+\beta x+\gamma x^2)}}.$$
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Higher sines of 4th order

$$\left[\frac{x^\mu}{\mu!} \pm \frac{x^{\mu+n}}{\mu+n!} + \frac{x^{\mu+2n}}{\mu+2n!} \pm \dots (n=4) \right].$$

Kapteyn, J. C., & Kapteyn, W. *Amst. Ak. Vh.* 24 (1886) 98 pp.

— — *n*th order. *Kapteyn, J. C., & Kapteyn, W.* *Wien Ak. Sb.* 93 (1886) (*Ab.* 2) 807-.

Infinite group of rational integral functions

$$\left[R_n x = (-1)^n \frac{d^n}{dx^n} (e^{-x} \cdot x^n) \right].$$

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$$0 = F(-2m-1, -n, -2n, 2)$$

$$(-1)^m = \frac{n_m}{(2n)_{2m}} = F(-2m, -n, -2n, 2).$$

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- , covariants and quotient-derivatives associated with differential equations. *Forsyth, A. R.* [1888] Phil. Trans. (A.) 179 (1889) 377-.
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- — — — periodic quantities, with applications. *Poisson, S. D.* *Par. Éc. Pol. J.* 18^e cah. (1820) 417-.
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- Mathematical expressions for physical quantities, permanence of form. *Guyther, R. F.* *Manch. Lt. Ph. S. Mm. & P.* 9 (1895) 119-.
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- Physical data applicable to mathematics. *Rarson, R.* [1847] *Manch. Ph. S. Mm.* 8 (1848) 329-.
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5610 Harmonic analysis; Fourier's series. (See also 3220.)

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- (Conduction of heat.) *Fourier, J. B. J.* [1807-11] *Par. S. Phlm. N. Bll.* 1 (1807) 112-; *Par. Mm. Ac. Sc.* 4 (1824) 185-; 5 (1826) 153-.
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- Case. *Porčickij, P. S.* Kazan S. Nt. (Ps.-Mth.) P. 6 (1888) 330-.
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- —, representation of arbitrary functions by. *Lejeune-Dirichlet, G.* Rpm. Ps. 1 (1837) 152-.
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Expansion of given function in series according to harmonic functions. *Steklov, V. A.* *Khar'kov Mth. S. Com.* 5 (1896?) 60-; *Fachr. Mth.* (1896) 203-; *C. R.* 128 (1899) 279-.

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$$0 = \Sigma_1^{2n-2} l_1 T_1^n \equiv H_n,$$

$$0 = \Sigma_1^{2n-1} l_1 T_1^n \equiv H_n + \lambda H_1'.$$

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- definition, and applications. *Saltel, L.* [1879] Bordeaux S. Sc. Mm. 4 (1882) 1-.
- degree of multiplicity of solutions, and application to Plücker's relations. *Zeuthen, H. G.* N. A. Mth. 6 (1867) 200-.
- generalisation, applied to elimination. *Saltel, L.* N. A. Mth. 12 (1873) 565-.
- generalised. *Bobek, K.* Wien Ak. Sb. 93 (1896) (Ab. 2) 899-.
- for groups of n points and n rays. *Schubert, H. C. H.* Mth. A. 12 (1877) 180-.
- and law of decomposition applied to skew curves, in particular to locus of centres of osculating spheres of given skew curve. *Saltel, L.* Brux. Ac. Bll. 43 (1877) 266-.
- of plane and space. *Zeuthen, H. G.* C. R. 78 (1874) 1553-.
- and systems of curves. *Segre, C.* Bb. Mth. (1892) 33-.
- theory of characteristics. *Legoux, A.* Toul. Ac. Sc. Mm. 8 (1886) 208-.
- of 2 variables. *Charles, M.* C. R. 41 (1855) 1097-.
- Projective generation of groups of curves C^{m+n} . *Küpper, K.* Prag Sb. (1897) (Mth.-Nt.) No. 5, 15 pp.
- Projective properties of curves. *Juel, C.* [1899] Kjöb. Dn. Vd. Selsk. Skr. 10 (1899-1902) 1-. [With French résumé.]
- Rational curve, plane, 3rd degree, representation on conic. *Weyr, E. J.* Wien Ak. Sb. 79 (1879) (Ab. 2) 429-.
- — — skew, 4th degree. *Rohn, K.* Leip. Mth. Ps. B. 42 (1890) 208-; 43 (1891) 1-.
- — — — —, automorphic transformation. *Brambilla, A.* Mil. I. Lomb. Rd. 20 (1887) 780-.
- — — — —, harmonic centre of "quadruple" given by. *Weyr, E. J.* Wien Ak. Sb. 81 (1880) (Ab. 2) 1218-.
- — — — —, representation on conic. *Weyr, E. J.* [1875-76] Wien Ak. Sb. 72 (1876) (Ab. 2) 686-; 73 (1876) (Ab. 2) 203-.
- curves. *Davis, E. W.* J. H. Un. Cir. [3] (1884) 123.
- — — — — with double point or cusp, Abel's theorem. *Johansson, N. A.* Fsch. Mth. (1885) 405.
- — — — — in n -flat space. *Bissing, G.* J. H. Un. Cir. [3] (1884) 123.
- — — — — generation. *Jonquières, E. de.* C. R. 105 (1887) 1148-.
- — — — — plane. *Weyr, E.* Časopis 8 (*1879) 193-; Fsch. Mth. (*1879) 488.
- — — — —, representations on one another. *Weyr, E. J.* Wien Az. 15 (1878) 228-.
- — — — —, degrees n and $n-3$, intersections. *Fabry, E.* Par. Éc. Norm. A. 13 (1896) 107-.
- — — — — skew, singularities of 2nd order. *Weyr, E.* A. Mt. 4 (1870-71) 328-.
- Reducible curves. *Noether, M.* Erlang. Ps. Md. S. Sb. 17 (1885) 13-; Acta Mth. 8 (1886) 161-.
- Residuation in regard to curve of 3rd degree. *Cayley, A.* [1873] (vii) Mess. Mth. 3 (1874) 62-.
- theorem (intersections of plane curves at multiple points). *Macaulay, F. S. L.* Mth. S. P. 31 (1900) 381-.
- — — — —, Noether's theorem, and the Riemann-Roch theorem. *Macaulay, F. S.* [1899] L. Mth. S. P. 31 (1900) 15-.
- Residues in canonical series of adjoint curves of degree $m-3-a$. *Amodeo, F.* Rm. R. Ac. Linc. Rd. 2 (1898) (Sem. 1) 528-.
- relative to asymptotes. Quadrature of curves dependent on genus. *Marie, M.* C. R. 76 (1878) 943-.
- Singular points. *Plücker, J.* [1836] Liouv. J. Mth. 2 (1837) 11-.
- — — — — and tangents, influence on degree and class of plane curves. *Łazarzski, M.* Krk. Ak. (Mt.-Prz.) Rz. 15 (1887) 278-; Fsch. Mth. (1887) 607.
- Singularities of plane curves, higher. *Smith, H. J. S.* L. Mth. S. P. 6 (1874-75) 153-.
- — — — —, and new species of curve. *Brill, A.* [1879] Mth. A. 16 (1880) 348-.
- Skew curve, 4th degree, with double point, representation on conic. *Weyr, E. J.* [1878] Wien Ak. Sb. 78 (1879) (Ab. 2) 891-.
- — — — —, property of 9 points, etc. *Petot, A.* C. R. 98 (1884) 1245-.
- — — — —, 5th degree, genus 1. *Montesano, D.* Nap. Rd. 27 (1888) 181-.

- Skew curve, 6th degree, genus 1, arising from 2 trilinear relations. *London, F. Mth. A.* 45 (1894) 545-.
- curves. *Küpper, K. Prag Ab.* 4 (1892) No. 5, 16 pp., No. 7, 15 pp.
- , genus 0. *Tognoli, O. G. Mt.* 11 (1873) 180-.
- , —. *Sattel, L. C. R.* 80 (1875) 1824-.
- , —, double points. *Brill, A. Mth. A.* 3 (1871) 456-.
- of given degree, maximum genus. *Bobek, K. Wien Ak. Sb.* 93 (1886) (Ab. 2) 13-.
- , 5th degree, genus 1. *Weyr, E. Wien Ak. Sb.* 90 (1885) (Ab. 2) 206-; 92 (1886) (Ab. 2) 498-; 97 (1889) (Ab. 2a) 592-.
- , 6th degree, genus 1. *Weyr, E. Wien Ak. Sb.* 99 (1891) (Ab. 2a) 932-; 100 (1891) (Ab. 2a) 457-.
- Steiner's polygons on curve of 3rd degree. *Küpper, C. [1873-84] Prag Ab.* 6 (1874) 39 pp.; *Mth. A.* 24 (1884) 1-.
- — — — —. *Martinetti, V. Palermo Cir. Mt. Rd.* 5 (1891) 109-.
- porismatic polygons determined by (2, 2) relationship. *Weyr, E. [1869] Crelle J.* 71 (1870) 18-; 73 (1871) 87-.
- System of 3 doubly quadratic relations between 3 variables. *Fontené, G., & Bricard, R. N. A. Mth.* 18 (1899) 437-.
- Transformation of curve to one without multiple points. *Pieri, M. Rv. Mt.* 4 (1894) 40-.
- — — — —. *Levi, B. Rm. R. Ac. Linc. Rd.* 7 (1898) (Sem. 1) 111-.
- — systems in plane, uniform periodic. *Kantor, S. Acta Mth.* 19 (1895) 115-.
- method, reduction of singularities. *Vessiot, E. Par. S. Mth. Bil.* 22 (1894) 208-.
- of plane curves, uniform. *Voss, (Dr) A. Gött. Nr.* (1873) 414-.
- Transformations of curves, birational. *Poincaré, H. C. R.* 117 (1893) 18-.
- in plane, birational, finite groups. *Wiman, A. Mth. A.* 48 (1897) 195-.
- , uniform automorphic, curves admitting. *Noether, M. Mth. A.* 20 (1882) 59-; 21 (1883) 188-.
- , — periodic, foundations for theory. *Kantor, S. Nap. Ac. At.* 1 (1888) No. 7, 264 pp.; 4 (1891) No. 2, 74 pp.
- Trigonal curves. *Cavazzoni, L. Mil. I. Lomb. Rd.* 32 (1899) 777-.
- Triplets of points on cissoid. *Zahradník, K. Casopis* 12 (*1883) 105-; *Arch. Mth. Ps.* 6 (1886) 392-.
- Uniform functions connected by an algebraic relation, property. *Picard, É. Bil. Sc. Mth. As.* 4 (1880) (Pt. 1) 416-.
- Weierstrass's points on algebraic curve. *Haure, M. Par. Ec. Norm. A.* 13 (1896) 115-.
- — — — —. *Segre, C. Rm. R. Ac. Linc. Rd.* 8 (1899) (Sem. 2) 89-.

8040 Groups of curves and points on an algebraic surface; genus of surfaces. (See also 7640.)

- Castelnuovo, G. Mil. I. Lomb. Rd.* 24 (1891) 127-, 307-.
- Enriques, F. [1893-96] Tor. Ac. Sc. Mm.* 44 (1894) 171-; *Rm. S. It. Mm.* 10 (1896) 1-.
- Castelnuovo, G., & Enriques, F. Mth. A.* 48 (1897) 241-.
- Asymptotic curves on skew surfaces. *Jung, V. Casopis* 20 (1891) 294-; *Fachr. Mth.* (1891) 824.
- Class of surfaces. *Humbert, G. Palermo Cir. Mt. Rd.* 3 (1889) 277-; 4 (1890) 54-, 71, 72.
- — — (Humbert). *Castelnuovo, G. Palermo Cir. Mt. Rd.* 4 (1890) 69-, 71-, 195-.
- — — (Castelnuovo). *Guccia, —. Palermo Cir. Mt. Rd.* 4 (1890) 71.
- — —. *Noether, M. Palermo Cir. Mt. Rd.* 4 (1890) 299-.
- Collineation groups on Kummer's surfaces. *Kantor, S. Am. J. Mth.* 19 (1897) 86-.
- Continuous series of curves on regular surface. *Enriques, F. Palermo Cir. Mt. Rd.* 13 (1899) 95-.
- Correspondence, point to point, class of surfaces representable on plane by. *Brambilla, A. Mil. I. Lomb. Rd.* 21 (1888) 334-, 511-.
- between points of plane and those of elliptic paraboloid. *Ciamberlini, C. G. Mt.* 32 (1894) 69-.
- , projective, between forms of 2 dimensions. *Paolis, R. de. Rm. R. Ac. Linc. Rd.* 3 (1894) (Sem. 2) 225-.
- , uniform, of algebraic configurations. *Noether, M. Mth. A.* 2 (1870) 293-; 8 (1875) 495-.
- , —, — surfaces, 2 criteria. *Nöther, M. Gött. Nr.* (1873) 248-.
- , —, —, and differential equations, 2nd order, with fixed critical points. *Painlevé, P. C. R.* 117 (1893) 611-.
- Correspondences, uniform, curves and surfaces admitting. *Kantor, S. C. R.* 100 (1885) 343-.
- (1, 4) between points on curves of surfaces of 3rd degree. *Walsch, G. [1894] D. Mth. Vr. Jbr.* 4 (1897) 113-.
- Curve of 4-point contact on surface. *Voss, A. E. Mth. A.* 9 (1876) 483-.
- Curves on cones, genus. *Sturm, R. Mth. A.* 19 (1882) 487-.
- surfaces. *Brunel, —. Bordeaux S. Sc. Mm.* 3 (1893) iv.
- and surfaces, points in theory. *Humbert, G. Liouv. J. Mth.* 10 (1894) 169-.
- — — — — (Humbert). *Painlevé, P. Liouv. J. Mth.* 10 (1894) 203-.
- Developables, curves on. *Künzler, G. Sch. Nf. Gs. Vh.* (1898) 47.
- Double planes of genus 1. *Enriques, F. Rm. S. It. Mm.* 10 (1896) 201-.
- Envelope with n parameters connected by $n-2$ relations, degree. *Sattel, L. C. R.* 83 (1876) 894-; *Brux. Ac. Bil.* 43 (1877) 24-, 31-.
- Genus of certain surfaces. *Cayley, A. Mth. A.* 3 (1871) 526-.

- Groups of points in involution marked on surface. *Le Paige, C. M. M. H. H. C. R.* 99 (1884) 537-.
- — — plane, and effect in determining curves. *Macaulay, F. S. L. Mth. S. P.* 29 (1898) 873-.
- — — on surface, impossibility of some series. *Picard, É. C. R.* 126 (1898) 1383-.
- — straight lines on surfaces of higher degree. *Affolter, F. G. Mth. A.* 27 (1886) 277-; 29 (1887) 1-.
- Homaloidal surfaces containing groups of conics. *Montesano, D. Mil. I. Lomb. Rd.* 24 (1891) 889-.
- —, 4th and 5th degrees, with no multiple lines. *Montesano, D. Nap. Rd.* 39 (1900) 158-.
- Hyperelliptic curves, surfaces containing net of. *Castelnuovo, G. Rm. R. Ac. Linc. Rd.* 3 (1894) (Sem. 1) 473-.
- surfaces, curves on. *Humbert, G. Liouv. J. Mth.* 9 (1893) 29-, 361-.
- Intersection of 3 surfaces in a singular point. *Guccia, G. B. Rm. R. Ac. Linc. Rd.* 5 (1889) (Sem. 1) 456-.
- Intersections of 3 surfaces. *Berzolari, L. A. Mt.* 24 (1896) 165-.
- Invariant number in theory of surfaces. *Picard, É. C. R.* 116 (1893) 285-.
- numbers in theory of surfaces. *Picard, É. C. R.* 119 (1894) 1169-; 122 (1896) 101-.
- Involution, generalised. *Cayley, A. Camb. and Dubl. Mth. J.* 2 (1847) 52-.
- of higher dimensions. *VanĚček, J. S., & VanĚček, M. N. C. R.* 99 (1884) 742-, 856-, 909-.
- and rational homography, theory. *Deruyts, F. Liège S. Sc. Mm.* 17 (1892) No. 3, 208 pp.
- Involutions, plane. *Chizzoni, F. Rm. R. Ac. Linc. Mm.* 19 (1884) 301-.
- —, rationality. *Castelnuovo, G. Rm. R. Ac. Linc. Rd.* 2 (1893) (Sem. 2) 205-; *Mth. A.* 44 (1894) 125-.
- Involutory transformations, groups. *Montesano, D. Ven. I. At.* (1887-88) 1425-.
- Linear genus of surface and classification to which it leads. *Castelnuovo, G. Rm. R. Ac. Linc. Rd.* 6 (1897) (Sem. 1) 372-, 406-.
- systems of curves on surface. *Castelnuovo, G. Rm. S. It. Mm.* 10 (1896) 82-; *A. Mt.* 25 (1897) 235-.
- — lines on surface. *Picard, É. Palermo Cir. Mt. Rd.* 13 (1899) 344-.
- Moduli of class of surfaces, degree. *Noether, M. Berl. Ak. Sb.* (1888) 123-.
- Multiple curves and developables of certain surface. *Lazzeri, G. Ven. I. At.* (1887-88) 171-.
- — of surfaces. *Noether, M.* [1871] *A. Mt.* 5 (1871-73) 163-.
- Rational curves, surfaces with systems. *Noether, M.* [1870] *Mth. A.* 3 (1871) 161-.
- Reciprocal of surface, degree. *Salmon, G.* [1847-55] *Camb. and Dubl. Mth. J.* 2 (1847) 65-; *Ir. Ac. T.* 23 (1859) 461-.
- surfaces. *Cayley, A. Ir. Ac. P.* 7 (1858) 20-; *Phil. Trans.* 159 (1869) 201-; 162 (1872) 83-.
- Reciprocal surfaces. *Zeuthen, H. G. Mth. A.* 4 (1871) 633-.
- Riemann-Roch theorem extended to surfaces. *Noether, M. C. R.* 103 (1886) 734-.
- Ruled surfaces, double curve on. *Wiman, A. Acta Mth.* 19 (1895) 63-.
- — of any genus. *Segre, C. Tor. Ac. Sc. At.* 22 (1886-87) 362-.
- — with rational double curves. *Weyr, E. J.* [1881] *Wien Ak. Sb.* 84 (1882) (Ab. 2) 691-.
- —, 4th degree, curves on. *Williams, F. B.* [1900] *Am. Ac. P.* 36 (1901) 17-.
- —, 5th degree. *Schwarz, H. A.* [1866] *Crelle J.* 67 (1867) 23-.
- Singular lines of surfaces, generic points. *Levi, B. A. Mt.* 2 (1899) 127-.
- points. *Guccia, G. B. C. R.* 105 (1887) 741-.
- —. *Del Pezzo, P. Palermo Cir. Mt. Rd.* 6 (1892) 139-.
- —, decomposition. *Segre, C. Tor. Ac. Sc. At.* 32 (1896) 521- or 781-; 33 (1897) 19-; *A. Mt.* 25 (1897) 1-.
- —, — (Segre). *Del Pezzo, P. Nap. Ac. Pont. At.* 27 (1897) No. 4, 13 pp., No. 10, 7 pp.
- —, resolution. *Levi, B. Tor. Ac. Sc. At.* 33 (1897) 56- or 66-.
- Singularities, reduction by birational transformations of space. *Pannelli, M. A. Mt.* 25 (1897) 67-.
- Skew curve, 4th degree, automorphic transformation, and correlation with developable of osculating planes. *Del Re, A. Tor. Ac. Sc. At.* 22 (1886-87) 901-.
- — — —, correlations changing into developable of bitangent planes. *Del Re, A. Nap. Rd.* 26 (1887) 167-.
- — — —, developable quartics and sextics occurring in automorphic transformation of. *Del Re, A. Nap. Rd.* 27 (1888) 37-.
- curves on hyperboloid of one sheet. *Cremona, L. C. R.* 52 (1861) 1319-.
- — — — —. *Chasles, M. C. R.* 53 (1861) 1077-, 1203-.
- — — surface of 3rd degree. *Clebsch, R. F. A. C. R.* 62 (1866) 1114-.
- — — surfaces. *Jonquières, E. de.* [1862] (viii) *A. Mt.* 5 (1863) 24-.
- — — — of 3rd and 4th degrees. *Rohn, K. Leip. Mth. Ps. B.* 46 (1894) 84-; 49 (1897) 631-.
- surfaces of given degree, maximum genus. *Bobek, K. Wien Ak. Sb.* 96 (1888) (Ab. 2) 1024-.
- —, 2nd degree, homographic systems of points on. *Townsend, R.* [1867] *QJ. Mth.* 9 (1868) 249-, 296-.
- Surface, 3rd degree, representation on plane. *Dumont, F. N. A. Mth.* 15 (1896) 318-.
- , 6th degree, genus - 1. *Noether, M. Mth. A.* 21 (1883) 399-.
- , 8th degree, genus 0. Systems of straight lines passing through given straight line. *Aschieri, F. G. Mt.* 12 (1874) 129-.
- , (n-4)th degree, passing through double curve of surface, constancy of number of coefficients. *Clebsch, R. F. A. C. R.* 67 (1868) 1238-.

8040 Groups of Points

- Surface $z^2=f(xy)$, double planes with $p^{(1)}=1$.
Enriques, F. Rm. R. Ac. Linc. Rd. 7 (1898) (Sem. 1) 234-, 253-.
- Surfaces admitting doubly infinite system of plane reducible sections. *Castelnuovo, G.* Rm. R. Ac. Linc. Rd. 3 (1894) (Sem. 1) 22-.
- and algebraic groups, theory. *Picard, É.* C. R. 120 (1895) 658-.
- containing curves of certain genus. *Castelnuovo, G., & Enriques, F.* C. R. 131 (1900) 739-.
- with double circular generation, determination. *Cosserat, E.* C. R. 130 (1900) 311-.
- on which families of conics lie. *Weiler, A.* Zür. Vjschr. 29 (1884) 223-.
- , genus 0. *Tognoli, O.* G. Mt. 11 (1873) 180-.
- , —. *Castelnuovo, G.* Rm. S. It. Mm. 10 (1896) 103-.
- , —, special configurations on. *Brunel, G.* [1899] Bordeaux S. Sc. PV. (1899-1900) 2-.
- , — $p=0$, representation on plane. *Armenante, A.* [1869] A. Mt. 4 (1870-71) 50-.
- , linear genus $p^{(1)}=2$. *Enriques, F.* Rm. R. Ac. Linc. Rd. 6 (1897) (Sem. 1) 139-.
- , — $p^{(1)}=3$. *Enriques, F.* Rm. R. Ac. Linc. Rd. 6 (1897) (Sem. 1) 169-.
- with plane sections elliptic curves. *Castelnuovo, G.* Rm. R. Ac. Linc. Rd. 3 (1894) (Sem. 1) 59-.
- — hyperelliptic curves. *Castelnuovo, G.* Palermo Cir. Mt. Rd. 4 (1890) 73-.
- — rational. *Picard, É.* Par. S. Phlm. Bll. 2 (1878) 127-; Crelle J. Mth. 100 (1887) 71-.
- — —. *Guccia, G. B.* Palermo Cir. Mt. Rd. 1 (1887) 165-.
- — points corresponding, fundamental points of 2. *Zeuthen, H. G.* C. R. 70 (1870) 742-.
- — —, properties. *Zeuthen, H. G.* Mth. A. 4 (1871) 21-.
- — rational generators, class. *Humbert, G.* C. R. 116 (1893) 1350-.
- , representation on plane. *Clebsch, R. F. A.* Gött. Nr. (1870) 253-.
- , 2nd degree, curves on. *Halphen, G. H.* [1872] (x) Par. S. Mth. Bll. 1 (1873) 19-.
- , —, —. *Schoute, P. H.* As. Fr. C. R. (1879) 180-.
- , —, —, application of binary forms. *Laguerre, E.* [1872] (x) Par. S. Mth. Bll. 1 (1873) 31-.
- , —, —, hyperboloidal coordinates. *Cayley, A.* Ph. Mg. 22 (1861) 35-.
- , 3rd degree. *Clebsch, R. F. A.* [1865-69] Crelle J. 65 (1866) 359-; Mth. A. 1 (1869) 634-.
- , —, curves on. *Sturm, R.* Mth. A. 21 (1888) 457-.
- , 3rd and 4th degrees, Steiner's surface. *Küpper, K.* Prag Ab. 2 (1888) No. 10, 11 pp.
- Tacnodal points. *Korteweg, D. J.* Wien Ak. Sb. 98 (1890) (Ab. 2a) 1154-.
- Transformation of figures in space, method. *Vaněček, J. S.* C. R. 94 (1882) 1463-, 1583-.

Transcendental Functions 8050

- Transformation of figures in space, method. *Vaněček, J. S., & Vaněček, M. N.* C. R. 95 (1882) 1049-, 1146-; 96 (1883) 1714-, 1773-.
- — rational surfaces. *Cayley, A.* [1870] Mth. A. 3 (1871) 469-.
- — surfaces, automorphic. *Picard, É.* C. R. 103 (1886) 517-.
- — —, and a fundamental number in theory of surfaces. *Picard, É.* C. R. 103 (1886) 549-.
- — —, and a class of differential equations. *Picard, É.* C. R. 103 (1886) 635-.
- Transformations, birational automorphic, surfaces with continuous group of. *Castelnuovo, G., & Enriques, F.* C. R. 121 (1895) 242-.
- , —, —, —. *Painlevé, P.* C. R. 121 (1895) 318-.
- , —, surfaces admitting double infinity. *Picard, É.* C. R. 103 (1886) 730-.
- , bi-uniform, of surfaces. *Painlevé, P.* C. R. 122 (1896) 874-.
- , rational, of space, determined by general surface of 3rd degree. *Loria, G.* Tor. Ac. Sc. At. 26 (1891) 275-.
- Uniform functions of 2 points, invariant by rational transformations. *Appell, P.* C. R. 96 (1883) 1643-.

8050 Application of transcendental functions to algebraic curves. (See also 4040, 4060, 7660.)

- Abelian functions and curves of any genus. *Buchheim, A.* L. Mth. S. P. 13 (1882) 180-.
- , genus 3. *Amstein, H.* Laus. S. Vd. Bll. 24 (1889) 99-.
- integrals and curves of 4th degree with 1 double point. *Roberts, W. R. W.* L. Mth. S. P. 25 (1894) 151-.
- , genus $p=2$, periods. *Kepiński, S.* Prace Mt.-Fiz. 9 (1898) 139-; Fsch. Mth. (1898) 392.
- and plane curves. *Lindemann, C. L. F.* [1877] Crelle J. Mth. 84 (1878) 294-, 300-.
- , 1st species, plane curves rectifiable by. *Brodén, T.* Stockh. Ak. Hndl. Bh. 15 (Afd. 1) (1890) No. 5, 26 pp.
- and uniform correspondences on elliptic curves. *Patrassi, P.* G. Mt. 34 (1896) 195-.
- Abel's theorem, applications. *Michel, C.* C. R. 130 (1900) 885-.
- , — to conics. *Léauté, H.* C. R. 79 (1874) 93-, 602-; Toul. Ac. Sc. Mm. 8 (1876) 139-.
- , extension to skew curve. *Poincaré, H.* C. R. 100 (1885) 40-.
- Conchalic curves, trajectories and cissoids of 4th degree. *Huber, G.* Mh. Mth. Ps. 6 (1895) 157-.
- Conics, porism of 2. *Gundelfinger, S.* Crelle J. Mth. 83 (1877) 171-.
- Curves whose corresponding Abelian functions are of class $p=2$. *Clebsch, R. F. A.* [1868] Mth. A. 1 (1869) 170-.

8060 Transcendental Functions

- Abelian functions and Weddle quartic surface. *Caspary, F.* *Bll. Sc. Mth.* 15 (1891) 308-.
- Abel's theorem and surface generated by translation of curves. *Lie, S.* *C. R.* 114 (1892) 277-.
- — — translation surfaces. *Lie, S.* *Leip. Mth. Ps. B.* 48 (1896) 141-.
- — — varieties. *Lie, S.* *Leip. Mth. Ps. B.* 49 (1897) 181-.
- Addition theorem of hyperelliptic integrals and functions of 1st order, significance for confocal quadrics. *Staudé, E. O.* *Mth. A.* 22 (1883) 1-; 145-.
- Analysis situs*, and integrals of total differentials. *Picard, É.* *C. R.* 124 (1897) 532-.
- Cyclides and cyclides. *Darboux, G.* *C. R.* 68 (1869) 1311-; *Bordeaux Mm. S. Sc.* 8 (1870) 291-; 9 (1873) 1-.
- Elliptic functions, application to spherical polygons in one small circle and about another. *Richelot, F. J.* *Crelle J.* 5 (1829) 250-.
- integrals, minimal surfaces representable by. *Lilienthal, — von.* *Crelle J. Mth.* 99 (1886) 179-.
- ruled surfaces in n -dimensional space. *Segre, C.* *Tor. Ac. Sc. At.* 21 (1885) 868-.
- Groups and surfaces, theory. *Picard, É.* *Palermo Cir. Mt. Rd.* 9 (1895) 244-.
- Hessian of cubic surface. *Hutchinson, J. I.* *N. Y. Am. Mth. S. Bll.* 5 (1899) 282-; 6 (1900) 328-.
- Hyperabelian functions and surfaces representable by them. *Humbert, G.* *C. R.* 129 (1899) 667-.
- Hyperboloid of one sheet, and other ruled surfaces connected with it. *Schoenflies, A.* *Z. Mth. Ps.* 23 (1878) 269-; 24 (1879) 62-.
- Hyperelliptic canonical curves, surfaces with. *Enriques, F.* *Rm. R. Ac. Linc. Rd.* 5 (1896) (Sem. 1) 191-.
- functions, reduction of problem of 27 lines of cubic surface to transformation of. *Burkhardt, H.* *Gött. Nr.* (1892) 1-.
- — — representation of Kummer's surface by. *Reichardt, W.* *Ac. Nt. C. N. Acta* 50 (1887) 378-.
- — — quartic surfaces with double conic by. *Domsch, P. R.* *Arch. Mth. Ps.* 2 (1885) 198-; 225-.
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- — — — — (Jacobi). *Rubini, R.* *Tor. tolini A.* 2 (1851) 463-.
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- , —. *Halphen, G. H.* [1879] Par. S. Mth. Bll. 8 (1880) 31-.
- , —. (*Halphen*). *Schubert, H. C. H.* Par. S. Mth. Bll. 8 (1880) 60-.
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- — — —. *Cayley, A.* [1867] Phil. Trans. 158 (1868) 75-, 145-.
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- — — — — studied through Kummer's configuration. *Ciani, E.* Mil. I. Lomb. Rd. 31 (1898) 312-; A. Mt. 2 (1899) 53-.
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- (Wash. Ph. S. Bll. 6 (1884).)
- departure from normal sections of surface. *Berardinis, G. de.* Tor. Ac. Sc. Mm. 36 (1885) 159-.
- on developable surface. *Molins, H.* Toul. Mm. Ac. 5 (1861) 401-.
- differential equation. *Issaly, —.* N. A. Mth. 19 (1900) 392-.
- and elliptic functions. *Braunmühl, A. von.* Mth. A. 26 (1886) 151-.
- envelopes. *Braunmühl, A. von.* [1878] Mth. A. 14 (1879) 557-.
- equation, and applications. *Azzarelli, M.* Rm. N. Linc. At. 31 (1878) 327-.
- , general, discovery. *Eneström, G.* Bb. Mth. (1899) 19-.
- , integration. *Brioschi, F.* Tortolini A. 4 (1853) 133-.
- generalisation of problem. *Schlömilch, O.* Z. Mth. Ps. 13 (1868) 156-.
- and geodesic triangle. *Brill, A.* Münch. Ak. Ab. 14 (1883) (Ab. 2) 109-.
- geometrical demonstrations. *Hart, A. S.* Camb. and Dubl. Mth. J. 4 (1849) 80-.
- at infinity, and geodesics of ruled quadrics. *Hadamard, —.* Par. S. Mth. Bll. 26 (1898) 195-.
- integrable, surfaces having. *Laguerre, E.* (x) Par. S. Mth. Bll. 1 (1873) 281.
- Joachimsthal's theorem, geometrical proof. *Graves, C.* [1850] Crelle J. 42 (1852) 279.
- length. *Ivory, J.* QJ. Sc. 21 (1826) 361-.
- letters to Johann and Daniel Bernoulli. *Clairaut, A. C.* Rm. N. Linc. At. 45 (1892) 245-.
- lines analogous to. *Darboux, G.* Par. Ec. Norm. A. 7 (1870) 175-.
- and lines of curvature. *Joyce, M. J.* QJ. Mth. 5 (1862) 265-.
- — —, general equations. *Dickson, B.* Camb. and Dubl. Mth. J. 5 (1850) 166-.
- and Liouville's isothermic systems. *Ricci, G.* Ven. I. At. (1893-94) 643-.
- normal plane sections at two adjacent points, divergence between. *Berg, F. J. van den.* Amst. Ak. Vs. M. 10 (1876) 1-; Arch. Néerl. 12 (1877) 353-.
- partial differential equation of 3rd order connected with. *Lévy, M.* C. R. 85 (1877) 904-.
- — — 4th order connected with. *Lévy, M.* C. R. 85 (1877) 938-, 1009-.
- problem, and equations with mixed functions. *Koenigs, G.* C. R. 117 (1893) 683-.
- , intermediary integrals of equation. *Lévy, M.* C. R. 85 (1877) 1150-.
- , rational integrals. *Lévy, M.* C. R. 85 (1877) 1065-.
- projection. *Schols, C. M.* Delft Éc. Pol. A. 5 (1889) 133-.
- , curvature. *Schols, C. M.* Delft Ec. Pol. A. 2 (1886) 179-.
- properties. *Young, (Dr) T.* QJ. Sc. 21 (1826) 136-.
- property, fundamental. *Ferrers, N. M.* QJ. Mth. 1 (1857) 245.
- with quadratic integrals. *Koenigs, G.* Par. S. Phlm. Bll. 5 (1893) 26-.
- representing motion with 2 degrees of freedom. *Kelvin, (Lord).* B. A. Rp. (1892) 652-.
- on ruled surfaces. *Astor, A.* As. Fr. C. R. (1887) (Pt. 2) 1-.
- special, on harmonic surfaces. *Raffy, L.* Par. S. Mth. Bll. 22 (1894) 8-.
- on special surfaces. *Guldberg, A.* N. Ts. Mth. 6 (B) (1895) 1-; Ftschr. Mth. (1895) 704-.
- and spheroidal trigonometry. *Grunert, J. A.* Grunert Arch. 22 (1853) 64-; 40 (1863) 33-.
- on spiral surfaces, and their differential equations. *Hadamard, J.* Bordeaux S. Sc. PV. (1895-96) 55-.
- any surface. *Euler, L.* [1779] St Pet. Ac. Sc. N. Acta 15 (1806) 44-.
- surface of centres. *Hoppe, R.* Arch. Mth. Ps. 63 (1879) 81-.
- surfaces of constant curvature. *Liouville, R.* Am. J. Mth. 10 (1888) 283-.
- — — anticlastic curvature. *Hadamard, —.* Bordeaux S. Sc. PV. (1896-97) 60-; C. R. 124 (1897) 1503-.
- — — revolution. *Jamet, —.* Brux. Ac. Bll. 13 (1887) 421-.
- — —. *Catalan, E. C.* Brux. Ac. Bll. 13 (1887) 425-; Liège S. Sc. Mm. 15 (1888) No. 1, 213-.
- — —, Clairaut's equation. *Lorenzoni, G.* Ven. I. At. 2 (1875-76) 591-.
- — —, — theorem. *Emilio, R. d'.* Ven. I. At. (1892-93) 1191-.
- — — between 2 points of generator. *Castet, —.* Bordeaux S. Sc. Mm. 2 (1878) 185-.
- — —, theorem. *Lommel, E.* Grunert Arch. 38 (1862) 201-.
- system, characteristic of differential equation. *Liouville, R.* C. R. 108 (1889) 495-.
- contained in cyclic systems. *Guichard, C.* C. R. 128 (1899) 1308-.

- theorem. *Dini, U. G. Mt.* 3 (1865) 65-.
- , fundamental. *Faà de Bruno, F. Les Mondes* 8 (1865) 739-.
- theorems of Jacobi, two. *Paraf, —. C. R.* 106 (1898) 1139-.
- theory. *Böcklen, O. Grunert Arch.* 39 (1862) 189-.
- , *Beltrami, E. Mil. I. Lomb. Rd.* 1 (1868) 708-.
- , *Jamet, V. Mars. Fac. Sc. A.* 8 (1898) 117-.
- , *Stäckel, P. D. Nf. Vh.* (1900) (*Th.* 2, *Hälfte* 1) 5-.

Geodesics on quadrics.

(See also Geography 70.)

- Hart, A. S. Camb. and Dubl. Mth. J.* 4 (1849) 192-.
- Graves, C. Ir. Ac. P.* 4 (1850) 283-.
- Cayley, A. [1872] L. Mth. S. P.* 4 (1871-73) 191-, 368-.
- Laguerre, E. N. A. Mth.* 15 (1876) 10-.
- on confocals, and lines of curvature. *Chasles, M. Liouv. J. Mth.* 11 (1846) 105-.
- ellipsoid. *Jacobi, C. G. J. Crelle J.* 19 (1839) 309-.
- , *Liouville, J. Liouv. J. Mth.* 9 (1844) 401-.
- , *Jacobi, C. G. J. Berl. B.* (1846) 351-.
- , *Roberts, M. Liouv. J. Mth.* 12 (1847) 491-.
- , *Schläfli, L. Bern Mt.* (1847) 96-.
- , *Besge, V. A. Liouv. J. Mth.* 14 (1849) 247-.
- , *Roberts, W. Liouv. J. Mth.* 2 (1857) 213-.
- , *Aoust, L. C. R.* 50 (1860) 484-.
- , *Böcklen, O. Grunert Arch.* 35 (1860) 101-.
- , *Weierstrass, C. Berl. Mb.* (1861) 986-.
- , *Cayley, A. [1871] Ph. Mg.* 41 (1871) 534-; *As. S. Mm.* 39 (1872) 31-.
- , application of elliptic functions. *Roberts, M. Liouv. J. Mth.* 15 (1850) 275-.
- , centres of maximum and minimum curvature, etc. *Schläfli, L. Bern Mt.* (1846) 145-.
- , equation, geometrical demonstration. *Liouville, J. C. R.* 22 (1846) 111-.
- , Jacobi's method. *Tortolini, B. Rm. At.* 4 (1850-51) 287-.
- , and lines of curvature. *Roberts, M. Liouv. J. Mth.* 11 (1846) 1-; 13 (1848) 1-.
- , —, —, two theorems. *Liouville, J. C. R.* 22 (1846) 893-.
- , radii of two curvatures. *Tortolini, B. Tortolini A.* 2 (1851) 345-.
- through umbilic. *Hart, A. S. Ir. Ac. P.* 4 (1850) 274.
- and their envelopes. *Braunmühl, A. von. Mth. A.* 20 (1882) 557-.
- geometrical demonstration. *Liouville, J. Liouv. J. Mth.* 11 (1846) 21-.
- and lines of curvature. *Joachimsthal, F. Crelle J.* 26 (1843) 155-.

- and lines of curvature. *Chasles, M. Liouv. J. Mth.* 11 (1846) 5-, 105-.
- — — (Chasles). *Liouville, J. Liouv. J. Mth.* 12 (1847) 255.
- loci. *Rutledge, J. Y. Camb. and Dubl. Mth. J.* 6 (1851) 21-.
- on non-central quadrics. *Marcolongo, R. Nap. Rd.* 30 (1891) 32-.
- paraboloids. *Marcolongo, R. Rm. B. Ac. Linc. Rd.* 6 (1890) (*Sem.* 1) 392-; *G. Teix. J. Sc.* 11 (1892) 145-.
- , and lines of curvature. *Chelini, D. G. Arcad.* 106 (1846) 161-.
- quadrics not of revolution. *Forsyth, A. R. L. Mth. S. P.* 27 (1896) 250-.
- right cone. *Véaz, J. A. [1868] (xii) Mag. Tud. Ak. Etk. (Mth.) [1] (No. 5) (1869) 19 pp.*
- , *Czuber [Čuber], E. Arch. Mth. Ps.* 69 (1883) 125-.
- spheroid. *Soldner, J. Zach M. Cor.* 11 (1805) 7-.
- , *Baeyer, J. J. As. Nr.* 71 (1868) 289-.
- , *Ciscato, G. Ven. I. At.* (1891-92) 1087-, 1333-.
- , approximate calculation. *Pizzetti, P. Nap. Rd.* 35 (1896) 75-.
- , arcs. *Halphen, G. H. C. R.* 105 (1887) 583-.
- , Dalby's method of finding difference of longitude of 2 points. *Tiarks, J. L. Ph. Mg.* 4 (1828) 364-.
- , new geometrical representation. *Schuering, K. Z. Mth. Ps.* 24 (1879) 405-.
- , oblate. *Cayley, A. Ph. Mg.* 40 (1870) 329-.
- , *Fergola, E. Nap. Rd.* 33 (1894) 136-.
- , *Pizzetti, P. Tor. Ac. Sc. At.* 30 (1895) 217-.
- , *Forsyth, A. R. Mess. Mth.* 25 (1896) 81-.
- , conjugate points. *Forsyth, A. R. Mess. Mth.* 25 (1896) 161-.
- , properties. *Ivory, J. Tilloch Ph. Mg.* 67 (1826) 241-, 340-.
- , between 2 points, latitude and longitude of which are given. *Puissant, L. Par. S. Gg. Bll.* 9 (1828) 184-.
- , prolate. *Halphen, G. H. C. R.* 105 (1887) 535-.
- torsion at a point. *Laguerre, E. Par. S. Mth. Bll.* 4 (1876) 160-.

- Geodesy, solution of fundamental question in. *Chandrikov, M. T. Rec. Mth. (Moscou)* 17 (1895) 575-.
- Helix on cone. *Junge, A. Civing.* 4 (1858) 172-.
- Integrals of dynamics. *Painlevé, P. C. R.* 114 (1892) 1168-.
- Isoperimetric figures on any surface. *Bordoni, A. (vi Add.) Opusc. Mt. Fis.* 1 (1832) 1-.
- Latitude, longitude and azimuth. *Andrae, —. Kjöb. Ov.* (1858) 230-; *As. Nr.* 50 (1859) 161-.

- Latitude and longitude, formulæ. *Oriani, B.* Mil. Effem. As. (1808) 3-.
- Line-element of surface, certain forms. *Massimi, P.* Rm. N. Linc. At. 52 (1899) 98-.
- Lines of equal slope on given surfaces. *Schlömilch, O.* Schlömilch Z. 1 (1856) 250-.
- greatest slope. *Steen, A.* (xii) Ts. Mth. 1 (1865) 123-.
- — — *Breton (de Champ), —.* C. R. 70 (1870) 982-.
- — —, differential equation. *Breton (de Champ), —.* C. R. 64 (1867) 407-.
- — —, ridge lines and channels. *Boussinesq, J.* C. R. 73 (1871) 1368-; 75 (1872) 198-, 835-.
- shadow for some surfaces. *Pirondini, G.* G. Mt. 29 (1891) 356-.
- striction. *Larmor, J.* QJ. Mth. 19 (1883) 381-.
- of hyperboloid. *Monteiro, A. S. G.* Teix. J. Sc. 3 (1881) 131-.
- — — as curves generated by higher configurations. *Schmid, T.* [1881] Wien Ak. Sb. 84 (1882) (Ab. 2) 908-.
- — — rational skew curves of 4th order. *Migotti, A.* [1879] Wien Ak. Sb. 80 (1880) (Ab. 2) 1025-.
- — — of one sheet. *Bobek, K.* Par. S. Mth. Bll. 11 (1883) 125-.
- — — and of hyperbolic paraboloids. *Bauer, M.* Z. Mth. Ps. 28 (1883) 274-.
- ruled surfaces. *Nicolaidès, N.* Les Mondes 9 (1866) 146-.
- — — of 2nd and 3rd degrees. *Adler, A.* Wien Ak. Sb. 85 (1882) (Ab. 2) 369-.
- — —, etc. of skew surfaces. *Enneper, A.* Gött. Nr. (1867) 454-.

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- on conical surfaces. *Enneper, A.* Gött. Nr. (1869) 459-.
- cylinder and cone. *Grebe, E. W.* Grunert Arch. 2 (1842) 127-.
- ellipsoid and sphere. *Plagemann, W.* Grunert Arch. 32 (1859) 1-.
- equation and properties. *Fournier-Vannson, —.* N. A. Mth. 20 (1861) 31-, 225-.
- and geodesics on tore. *Puchta, A.* Mh. Mth. Ps. 1 (1890) 443-.
- loxodromic figures. *Friesach, K.* Steierr. Mt. (1878) 78-.
- on paraboloid of revolution. *Boyman, J. R.* Grunert Arch. 13 (1849) 375-.
- projecting into logarithmic spirals, surfaces with. *Molins, H.* Toul. Ac. Sc. Mm. 7 (Sem. 2) (1885) 293-; 8 (1886) 426-.
- properties. *Arrest, H. d.* As. Nr. 36 (1853) 351-.
- on quadrics. *Boyman, J. R.* Grunert Arch. 7 (1846) 337-.
- and shortest paths on spheroid. *Caluso, (l'abbé) T. V. de.* Turin Mm. Ac. 4 (1788-89) 325-; 5 (1790-91) 100-.
- spherical catenary. *Gudermann, C.* Crelle J. 11 (1834) 394-.

- on any surface. *Legoux, A.* Toul. Ac. Sc. Mm. 1 (1889) 352-.
- surfaces. *Dina, C.* G. Mt. 19 (1881) 298-.
- of revolution. *Schubert, F. T.* [1803] St Pet. Ac. Sc. N. Acta 15 (1806) 202-.
- — — *Gergonne, J. D.* Gergonne A. Mth. 8 (1817-18) 125-.
- — — *Aoust, L.* Liouv. J. Mth. 11 (1846) 184-.
- — — *Junge, A.* Schlömilch Z. 5 (1860) 296-.
- — — *Laisant, C. A.* N. A. Mth. 13 (1874) 573-.
- — —, equations. *Grunert, J. A.* Grunert Arch. 21 (1853) 304-.

- Loxodromic arc between two points on sphere. *Friesach, K.* Steierr. Mt. (1880) 3-.
- and great circles on sphere, relation. *Friesach, K.* Steierr. Mt. (1876) 97-.
- triangles. *Grunert, J. A.* Grunert Arch. 16 (1851) 23-.

- Maximum area on surface with given perimeter. *Aelt, —.* N. A. Mth. 19 (1860) 100-.

- Meridian curve of surface of revolution. *Resal, H. A.* C. R. 85 (1877) 5-.

- Motion of point on surface. *Enneper, A.* Gött. Nr. (1869) 82-.

- Number of conditions for existence of an r -fold straight line on surface of n th order is

$$\frac{1}{2}r(r+1)(3n-2r+5).$$

- Machovec, F.* Časopis 16 (1887) 230-; Fachr. Mth. (1887) 780.

- Orthodromic sailing. *Glotin, P.* [1876-79] Bordeaux S. Sc. Mm. 1 (1876) xlviii-; 2 (1878) 189-; 3 (1880) 377-.

- Orthogonal lines on surface, and linear partial differential equations of 2nd order (elliptic type). *Burgatti, P. A.* Mt. 23 (1895) 225-.

- Points on surfaces such that geodesics through them never cease to be shortest lines. *Mangoldt, H. von.* [1890] Crelle J. Mth. 91 (1881) 23-.

- Projection, quasi-stereographic, due to Gauss. *Forsyth, A. R.* QJ. Mth. 21 (1886) 376-.

- Pseudo-spheres, Viviani's theorem. *Torelli, G.* G. Mt. 10 (1872) 128-.

- Quadrable figures on surface of right cone. *Magistrini, D.* [1845] Bologna N. Cm. 8 (1846) 427-.

- Ribaucour's problem. *Guichard, C.* C. R. 125 (1897) 1013-.

- Ridge lines and channels. *Barre de Saint-Venant, —.* Par. S. Phlm. PV. (1852) 24-.

- — — *Jordan, C. C.* R. 74 (1872) 1457-; 75 (1872) 625-, 1023-.

- — — *Breton (de Champ), P.* Liouv. J. Mth. 3 (1877) 99-.

- — —, geometrical characters. *Breton [de Champ], P.* C. R. 53 (1861) 808-.

- — — lines connected with them. *McCowan, J.* Ph. Mg. 37 (1894) 227-.

- Spherical catenaries. *Gudermann, C.* Crelle J. 33 (1846) 189-, 281-.

- class-cubics with 3 single foci. *Jeffery, H. M.* B. A. Rp. (1878) 490-.

- Sphero-conics, confocal, differential equation. *Burnside, W.* *Mess. Mth.* 20 (1891) 60-.
- Spheroidal trigonometry. *Puissant, L.* [1818-29] *Par. S. Phlm. Bll.* 3 (1818) 273-; *Par. Mm. Ac. Sc.* 10 (1831) 457-.
- , especially geodesics. *Gudermann, C.* [1847] *Crelle J.* 43 (1852) 294-.
- Spiral, conical, development. *Jubé, E. N.* *A. Mth.* 4 (1845) 454-.
- on tore. *Kinealy, J. H.* *St Louis Ac. T.* 5 (1892) 1-.
- Surfaces, reciprocally polar, relations between infinitesimal elements. *Demoulin, A. C.* *R.* 114 (1892) 1102-.
- of revolution cut by sphere in geodesics. *Molins, H.* *Toul. Ac. Sc. Mm.* 3 (1891) 296-.
- System of variables, new, of Bonnet. *Tortolini, B.* [1868] *Rm. At. N. Linc.* 22 (1869) 172-.
- Trajectories cutting at given angle tangents to any curve. *Molins, H.* *Toul. Mm. Ac.* 2 (1846) 65-.
- — — — — skew curve. *Molins, H.* *Toul. Mm. Ac.* 6 (1839-41) 83-.
- , on given surface or in space, rendering minimum $\int_0^s \phi(v) ds$, where v is the velocity. *Roger, É.* *C. R.* 40 (1855) 1176-.
- surfaces. *Gilbert, P.* *Brux. Ac. Bll.* 25 (1868) 288-.
- Triangle on spheroid, reduction of angle to angle of plane or spherical triangle. *Weingarten, J.* *As. Nr.* 75 (1870) 91-.
- Triangles formed by lines of system (α) or by geodesics, sum of angles. *Böcklen, O.* *Arch. Mth. Ps.* 43 (1865) 18-.
- on spheroid. *Legendre, A. M.* *Par. Mm. de l'I.* 6 (1806) (Sem. 1) 130-.
- — —, problems. *Proteus, P.* *Nicholson J.* 8 (1804) 151-.
- — —, solution. *Baeyer, (Gen.-Lt.) J. J.* *As. Nr.* 61 (1864) 225-; 71 (1868) 289-.

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- Gergonne, J. D.* *Gergonne A. Mth.* 7 (1816-17) 143-, 283-.
- Bonnet, O.* *C. R.* 40 (1855) 1107-; 41 (1855) 1057-; 42 (1856) 532-.
- Lamarle, E.* *Brux. Ac. Bll.* 6 (1859) 829-.
- Christoffel, E. B.* *Crelle J.* 67 (1867) 218-.
- Roger, É.* *C. R.* 71 (1870) 351-.
- Schwarz, C. H. A.* *Zür. Vjschr.* 19 (1874) 243-.
- Kiepert, L.* [1875-77] *Crelle J. Mth.* 81 (1876) 337-; 85 (1878) 171-.
- Cayley, A.* *QJ. Mth.* 14 (1877) 190-.
- Lie, M. S.* *Arch. Mth. Ntvd.* 4 (1879) 477-.
- Schwarz, H. A.* *Helsingf. Acta* 15 (1888) 315-.
- Vivanti, J.* *Z. Mth. Ps.* 33 (1888) 137-.
- Cayley, A.* *C. R.* 111 (1890) 953-.
- Carvalho, E.* *Bll. Sc. Mth.* 18 (1894) 12-.
- Paci, P.* *Tor. Ac. Sc. At.* 29 (1894) 446-.
- Stückel, P.* *Leip. Mth. Ps. B.* 48 (1896) 478-.
- Guichard, C.* *C. R.* 126 (1898) 1487-.
- Bromwich, T. J. F. A.* *L. Mth. S. P.* 30 (1899) 276-.
- Richmond, H. W.* *Camb. Ph. S. T.* 18 (1900) 324-.
- Algebraic surfaces. *Geiser, C. F.* [1870] *Mth. A.* 3 (1871) 530-.

- Algebraic surfaces, determination of lowest class number. *Henneberg, L.* [1877] *A. Mt.* 9 (1878-79) 54-.
- — — inscribed in algebraic developable. *Lie, M. S.* *Arch. Mth. Ntvd.* 3 (1878) 340-.
- — — sphere, and algebraic curves of constant torsion. *Cosserat, E.* *C. R.* 120 (1895) 1252-.
- — — inscriptible in cone, determination of all. *Lie, M. S.* *Arch. Mth. Ntvd.* 3 (1878) 224-.
- — —, projective and metrical researches. *Lie, M. S.* *Mth. A.* 14 (1879) 331-; 15 (1879) 465-.
- Apsidal or conjugate surfaces. *Gilbert, P.* *Brux. Ac. Bll.* 28 (1869) 31-.
- Area, second variation, especially for helicoids. *Schwarz, H. A.* *Berl. Mb.* (1872) 718-.
- Case. *Catalan, E. C.* *Par. S. Phlm. PV.* (1841) 59-.
- *Salvatore-Dino, N.* *Nap. Bd.* 19 (1880) 148-.
- *Zeeman, P.* *Haarl. Ms. Teyl. Arch.* 5 (1898) 299-.
- , construction of model. *Tallqvist, H.* *Helsingf. Öfv.* 31 (1889) 32-.
- Cases, determination. *Herzog, A.* *Zür. Vjschr.* 20 (1875) 217-.
- Catenoid as minimal surface, limits. *Lindelöf, L. L.* [1870] *Helsingf. Acta* 9 (1871) 353-.
- Class. *Weierstrass, C.* *Berl. Mb.* (1867) 511-.
- *Stouff, X.* *Toul. Fac. Sc. A.* 6 (1892) A, 8 pp.
- Continuous surface bounded by skew quadrilateral. *Tucci, F. P.* [1852] *Nap. Mm. Ac. Sc.* 1 (1852-54) 49-.
- Curve, rotation of which generates minimal surface. *Saalschütz, L.* *Arch. Mth. Ps.* 5 (1887) 131-, vii.
- Cyclic surface, determination of constants. *Juga, G.* *Mth. A.* 52 (1899) 167-.
- Developable surface with known edge of regression. *Monge, G.* *Par. Éc. Pol. Cor.* 1 (1804-08) 209-.
- — — passing through curve which develops into arc of circle of given radius. *Molins, H.* *Liouv. J. Mth.* 1 (1856) 265-.
- Division of space with minimum partitional area. *Thomson, (Sir) W.* *Ph. Mg.* 24 (1887) 503-.
- Doubly connected surface. *Kluyver, J. C.* *Amst. Ak. Vh. (Sect. 1)* 3 (1896) No. 9, 42 pp.; *Fachr. Mth.* (1895) 746-.
- Expression of line element. *Soler, E.* *Palermo Ac. At.* 4 (1897) (Sc. Nt.) 10 pp.
- Family. *Weingarten, J.* *Gött. Nr.* (1887) 272-.
- *Rouquet, V.* *Toul. Ac. Sc. Mm.* 2 (1890) 127-.
- of spheres connected with minimal surfaces. *Rouquet, V.* *Toul. Ac. Sc. Mm.* 1 (1889) 56-.
- Focal conics of confocals, construction of surfaces, with centres of curvature on. *Roberts, W.* *C. R.* 53 (1861) 799-.
- General equation. *Weiler, A.* *Grunert Arch.* 38 (1862) 356-.
- Generation. *Mathet, G.* *Liouv. J. Mth.* 8 (1863) 323-.
- Geodesics. *Lie, M. S.* *Arch. Mth. Ntvd.* 6 (1882) 490-.

- Geometrical researches. *Sturm, R.* Crelle J. Mth. 105 (1889) 101-.
- Helicoids. *Falchi, M.* G. Mt. 34 (1896) 89-.
- Joachimsthal's theorem. *Cayley, A. C. R.* 106 (1888) 995-.
- Minimal curves on surfaces. *Minding, E. F. A.* Crelle J. 5 (1829) 297-.
- — —. *Berner, T.* [1865] Z. Mth. Ps. 11 (1866) 81-.
- — —. *Minding, E. F. A.* [1878-79] St Pét. Ac. Sc. Bll. 25 (1879) 190-; Crelle J. Mth. 86 (1879) 279-.
- — — of revolution. *Minding, E. F. A.* [1875] St Pét. Ac. Sc. Bll. 21 (1876) 252-.
- Minimum areas (alvéole). *Jacob, —.* N. A. Mth. 2 (1843) 180-.
- circumscribed and maximum inscribed polygons to or in ellipse, and analogous polyhedra to or in ellipsoid. *Mainardi, G.* Rm. At. N. Linc. 26 (1873) 86.
- property of square and cube. *Bouvier, L. C.* Gergonne A. Mth. 15 (1824-25) 115-.
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$$\int_0^\infty [f(\sin ax, \cos ax) - f(\sin \beta x, \cos \beta x)] \frac{dx}{x} \\ = \frac{1}{2} \log \left(\frac{\beta}{\alpha} \right) [f(\sin 0, \cos 0) - A_0].$$

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$$\int_0^\infty \frac{x^{m-1} - 1}{1 - x^2} dx = \frac{\pi}{2} \cot \frac{m\pi}{2} \text{ if } 2 > m > 0.$$

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$$\int_0^{\frac{\pi}{2}} (2 \cos x)^{a+b} \cos(a-b)x dx. \text{ *Lipschitz*, R. O. S.} \\ \text{Bll. Sc. Mth. As. 5 (1881) (Pt. 1) 387-}$$

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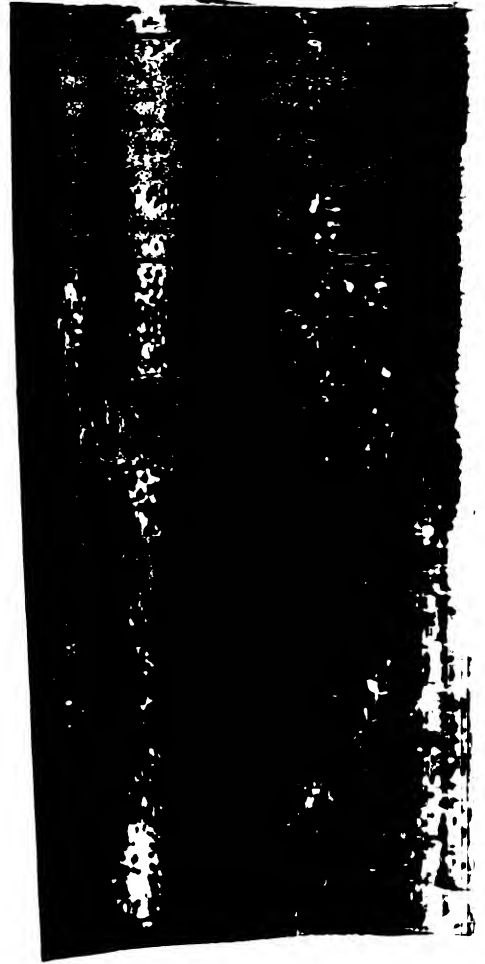
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